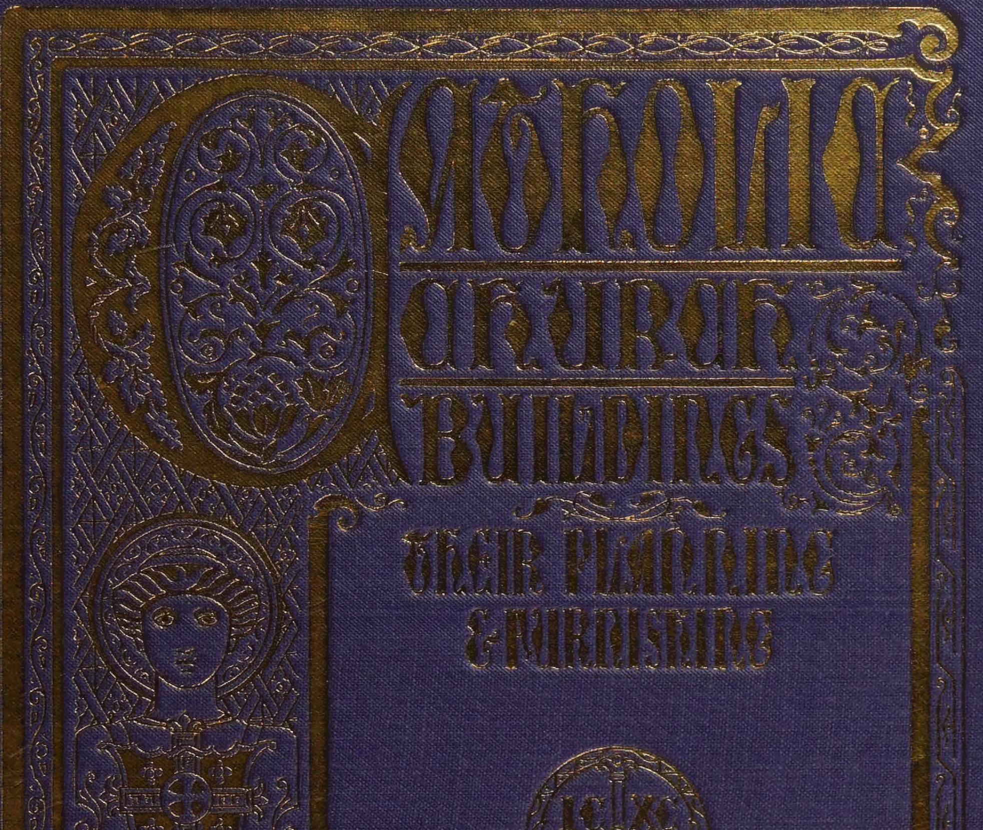

CATHOLIC CHURCH BUILDINGS

THEIR PLANNING & FURNISHING

by

EDWARD JOSEPH WEBER

1953

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EDWARD JOSEPH WEBER, A.A.I.A.

WITH AN INTRODUCTION BY THE

RIGHT REV. JOHN J. SWINT, D.D.

BISHOP OF WHEELING

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INTRODUCTION

By the Right Rev. JOHN J. SWINT, D.D., Bishop of Wheeling

ONE of the most eminent art critics of this country, not a Catholic, made the statement recently that until about twenty-five years ago Catholic church-building in the United States, from the artistic standpoint, was an abomination. He expressed himself as greatly surprised at this, as it was so contrary to all Catholic tradition. For the last twenty-five years, however, he avowed, there has been marked improvement, which gives promise that very soon Catholics will hold their rightful place far in the lead in really artistic church-building.

It is encouraging to note the growing interest in art especially among our clergy. It has become a frequent subject of conversation among them. Ideas and tastes are changing for the better. Even where there is little knowledge or taste, there is at least the desire for better things. Bishops and priests, too, have come to realize that really artistic buildings, correct and in keeping with the best Catholic traditions, can be erected as inexpensively as, or even more inexpensively than such as offend artistic taste and are by no means a credit to the Almighty.

Undoubtedly, the most important thing about church-building is the procuring of a proper and competent architect. Not every architect can build a church. He may put up a structure, but he cannot build a church. The church architect must be specially trained. He must be thoroughly familiar with Christian liturgy and symbolism. He must be deeply imbued with Catholic traditions in church-building. A church, to be a real church, must not only conform to the material requirements, but it must have a character, a certain spirit or *soul.* Only a truly ecclesiastical architect—I might add a Catholic architect—can give it that.

The architect must likewise, of course, be thoroughly familiar with

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all the practical needs of a Catholic church—the things required, their proper place, sizes, measurements, etc.

We are fortunate in having at the present time a goodly number of such architects. Among them—and, I would not hesitate to say, included in the foremost among them—is Mr. Edward J. Weber, the author of this book on Catholic Church Buildings. He here gives us the fruit, in very concrete form, of his studies and his practical experience. His work is intended as a guide-book for the priest who contemplates the building of a church, or of a church group. It might well serve as a textbook on architecture in our seminaries. And it might be given also with advantage to any ordinary architect who may be engaged to design a church.

We feel that in this volume Mr. Weber is giving us a great amount of most practical knowledge and advice, and we feel it will be no small factor in bettering the art of church-building in this country, thus accomplishing what is so dear to the heart of the author.

+ John J. Swint

AUTHOR'S FOREWORD

OUR generation has witnessed a constantly increasing interest in the liturgy, art and architecture of the Catholic Church. Even those who owe her no fealty, are today glad to recognize at least the incomparable contribution she has made to modern civilization through the artistic creations of her faithful sons. The day is gone when her works were weighed in the false scales of sectarian prejudice. The Renaissance dilettantes who airily dismissed her achievements as "medieval," have no successors in the cultured world of today. The term "Gothic" (that is, barbaric), applied by them to her architecture, has lost its obloquy, and is today used as the honorable badge to distinguish the greatest blossoming of architecture that the world has ever known.

If the mute eloquence of medieval cathedrals has silenced the lips of even the prejudiced, what should be the appeal of those glorious creations to Catholics, the direct heirs of all these treasures! Every motive, every ideal, that impelled and inspired those incomparable builders, should strike a responsive chord in the Catholic heart. While others may be content with admiring merely the external beauty of those masterpieces, it is given to us to penetrate through the glorious visible beauty that stands before us to the still more glorious beauty of the faith that here finds such sublime expression.

There have been many gratifying evidences in recent years that, with the hardest years of pioneer labor behind them, the Catholic priests of America are determined that their edifices should establish their kinship with the medieval church-builders. It is with an idea of contributing my little mite towards the furtherance of this admirable movement that the following chapters were written. Throughout the work, I have tried to keep constantly in mind the viewpoint of clerics confronted with the problem of erecting truly Catholic ecclesiastical buildings, and have striven to furnish practical information that may be of service in such circumstances.

With regard to the illustrations a few words of explanation may be given. As our ecclesiastical architecture will undoubtedly continue to draw its chief inspiration from the creations of the Christian past, the great majority of the illustrations are taken from the Medieval, Byzantine and Early Christian periods. Modern edifices have been introduced but sparingly, and only to illustrate special features I had in mind. Besides the modern American examples illustrated there are beautiful churches in many other cities of the United States, all of which would have to be included if exhaustive illustration were being attempted. However much I should desire it such exhaustive illustration it is obviously impossible here.

Edward J. Weber.

Pittsburgh, Pennsylvania, 1927.

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CATHOLIC CHURCH BUILDINGS
THEIR PLANNING AND FURNISHING

CHAPTER I

THE FALLACY OF BAD BUILDING

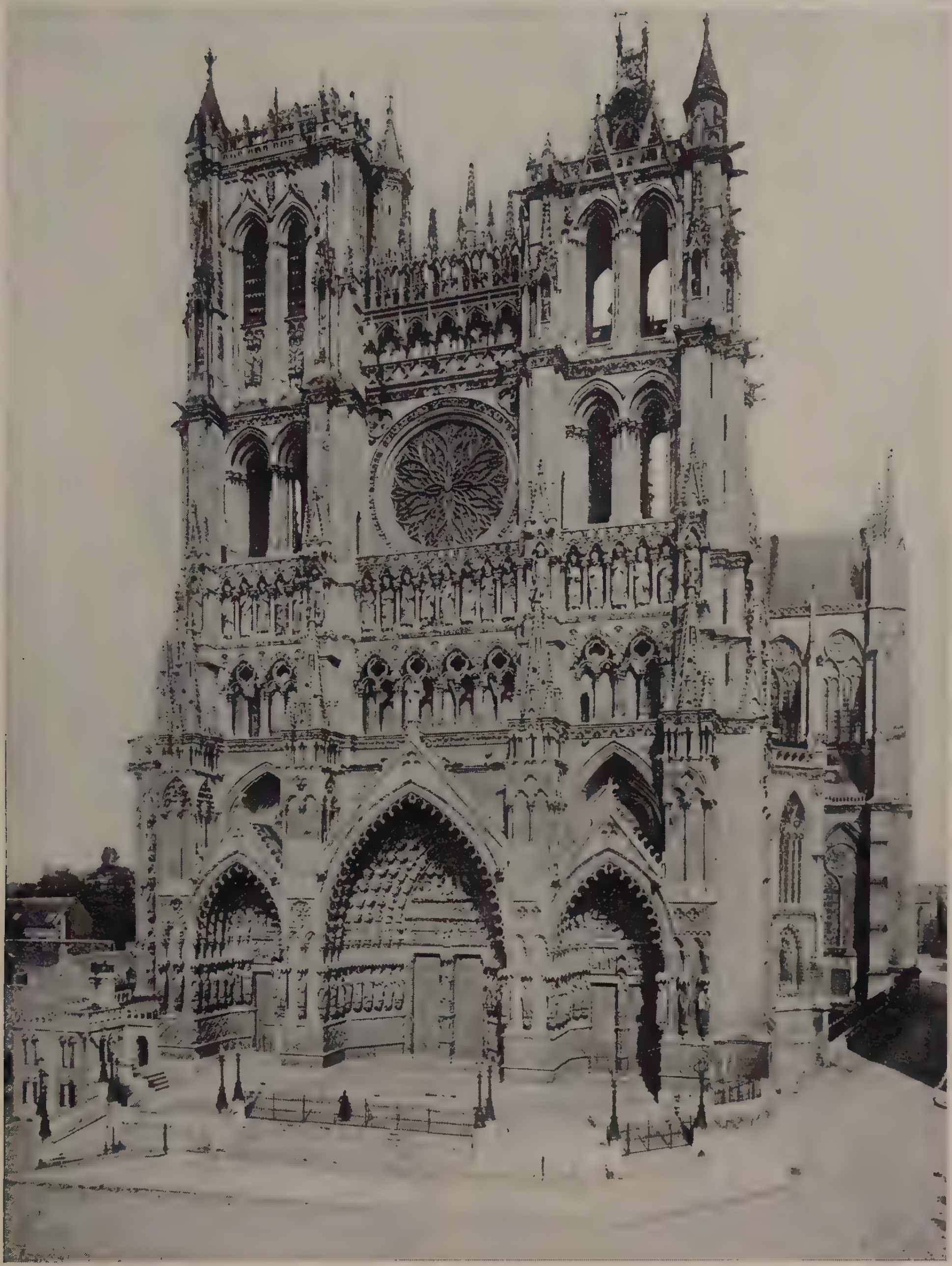
HISTORY records no architecture, no types of buildings more magnificent and delectable than the ecclesiastical edifices—many of which, thank God, survive to us—built during the period extending from almost the dawn of Christianity to the blight of the so-called Reformation. So widespread and sublime was the output of this Christian architecture that it may be compared to a vast firmament graced with countless constellations, some almost dazzling in their splendor. As though by a miracle, magnificent basilicas and cathedrals, marvelous religious schools and conventual establishments, exquisite parish churches and episcopal palaces, arose everywhere throughout the East and the West, and, while necessarily of different styles, they could all by virtue of their grandeur, their artistic brilliancy, and their harmonious adaptation to their purposes, lay claim to being considered transcendent creations.

These seeds, planted in so many places, brought forth fruit of such great distinction and beauty that the Omniscient must have looked with favor upon this devotion to His service of the highest talents of man. The highest of man's natural gifts—his love of beauty—was being laid as an offering on His altar.

So supreme in beauty of form and proportion are these ecclesiastical monuments that no profane buildings of any style have ever even remotely approximated them in romanticism and immateriality of conception. And, combined with these qualities, is the interesting expression of character pertaining to each type of edifice. We thus find a certain staid and solemn character in the cathedral, an austerity in the conventual establishment, a retiring, studious air in the school or college, and a touch of joy and gladness in the tiny village church; and in every case the atmosphere is conveyed in an effective but inobtrusive way that has never before or since been quite so well managed.

We cannot attempt to enumerate all the glorious edifices of that great era, but we may recall to mind a few that have come down to us through the centuries, and may still, in more or less their original glory, be seen today. The Churches of the Nativity and the Holy Sepulchre in Jerusalem, the Basilicas of Rome and Ravenna, Hagia Sophia in Constantinople, St. Mark's in Venice, the Capella Palatina in Palermo, the Monreale Cathedral in Sicily, the Siena Cathedral, Notre-Dame-la Grande in Poitiers, the Abbaye-aux-Hommes at Caen, the Church of the Apostles in Cologne, and the Cathedrals of Worms, Paris, Amiens, Rheims, Chartres, Rouen, Antwerp, Strassburg, Cologne, Milan, York, Durham, Canterbury, Burgos, Toledo, and Seville—these are among the noblest tributes of man's genius to his God and Creator. And other flowerings of this same genius may be seen in the Episcopal Palace at Beauvais, the Palais de Justice at Rouen, the ruined monasteries of Great Britain, the colleges of Oxford, and a great many of the parish churches of England.

Deep into the soul of every visitor these grand structures carry their message of the beauty, the sanctity, and the sublimity of our holy religion. Generation after generation, century after century, have succumbed to their hallowed spell, which not even the most sophisticated visitor can quite escape. The faith of the Middle Ages stands there before us graved in all its matchless sincerity. The very atmosphere seems saturated with this faith. And the truths which the churches teach are not couched in the cold phrases of logic, but have all the beauty and breath, the vigor and vitality, of a living message. Not to the brain alone do they speak, but to that possibly still more deeply seated urge in the soul of man which makes him yearn towards beauty,



The West Front PLATE 1

AMIENS CATHEDRAL, FRANCE

Amiens Cathedral is the proud possessor of a thirteenth-century Gothic West front, which can scarcely be equalled save perhaps by Rheims Cathedral or Notre Dame of Paris. It is a remarkable thing that this façade is architecturally of such superiority, for the towers are not built on the square plan which the present existing underground foundations indicate was intended. The fact is that what are now the front corner buttresses of the towers, were originally intended to be the central buttresses for the sides of the towers. In other words, the depth of the towers would be twice the dimension they now are, if they had been built as originally designed. In one respect this front is superior to Rheims, for the buttresses between the side arches and the central one on the great triple portal are carried down to the ground, and are not stopped in the valley between the gables as at Rheims. Colossal statues of twenty-two Kings of Judea are ranged in the gallery, half way up the façade. The three cavernous niches of the portals are dedicated to the Saviour, the Virgin and St. Firmin.

and here makes him insensibly feel that he is on the threshold, nay, in the very presence of the Source of all that is beautiful and true.

What do these monuments of the Christian spirit signify for us today? Do we regard them with indifference, or do they fire us with an appreciation of the wonders of ancient Catholic art, with a desire to emulate them? Looking at these glorious outpourings of the Catholic spirit of religion, are we content that future ages shall appraise our own faith by its expression in our religious edifices? Let us once and for all rid ourselves of the blighting influence which has affected Chris-

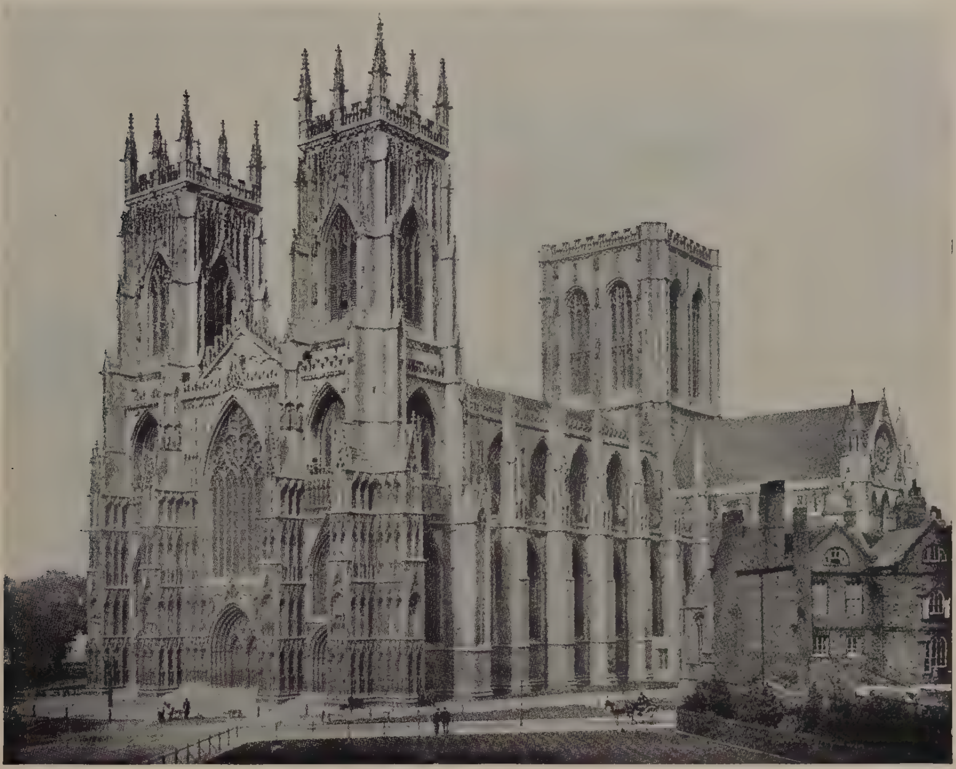
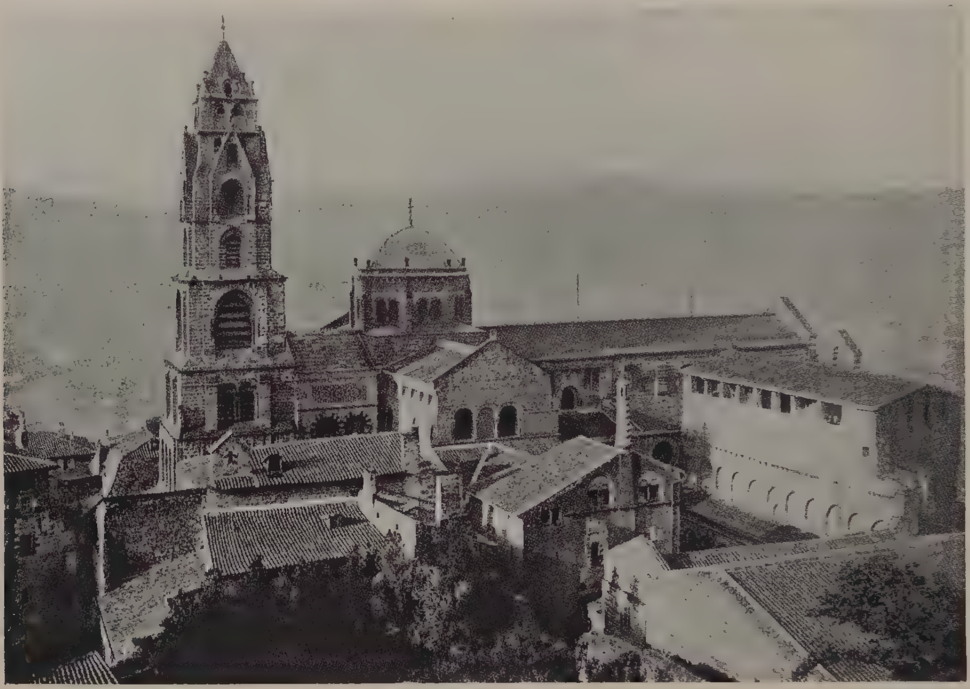


PLATE 2

CATHEDRAL OF YORK, ENGLAND

York Cathedral is one of the most architecturally successful of all the English cathedrals. However, although the largest in floor area of English examples, it does not compare in grandeur of scale with the great Continental cathedrals. Its unique stained glass dates from the fourteenth century. The lancet windows in the north wing of the transept are each five feet wide and rise to a height of fifty feet from the sill. The nave and chapter house were built between 1261 and 1324, while the tops of the towers date from the fifteenth century, when the Perpendicular period of English Gothic was in vogue.

tian art since the Reformation cast its dour shadow over mankind, and the Renaissance seduced the arts from their old allegiance to Christianity—that is, to truth. The God who endowed men with the talent to make things beautiful, must undoubtedly desire that talent to be devoted especially to the buildings consecrated to His worship and sanctified by His abiding presence. Let not the words which we repeat daily during Mass be a mere figure of speech: "Lord, I have loved the beauty of Thy house, and the place where Thy glory dwelleth." Let us make His house a place of real beauty, and let us in full humility strive to express in that house some slight suggestion of the glory that surrounds the Lord of Hosts.



North-East View PLATE 3

CATHEDRAL OF LE PUY, FRANCE

This cathedral was built on the highest point of the city at a time very remote. Architecturally, most of the structure belongs to the tenth century. The tower is massive, and the generous setbacks on the exterior are unique in medieval tower design. Byzantine and Romanesque influences can be detected in this cathedral group.

Compared to the same types of buildings in the older countries of

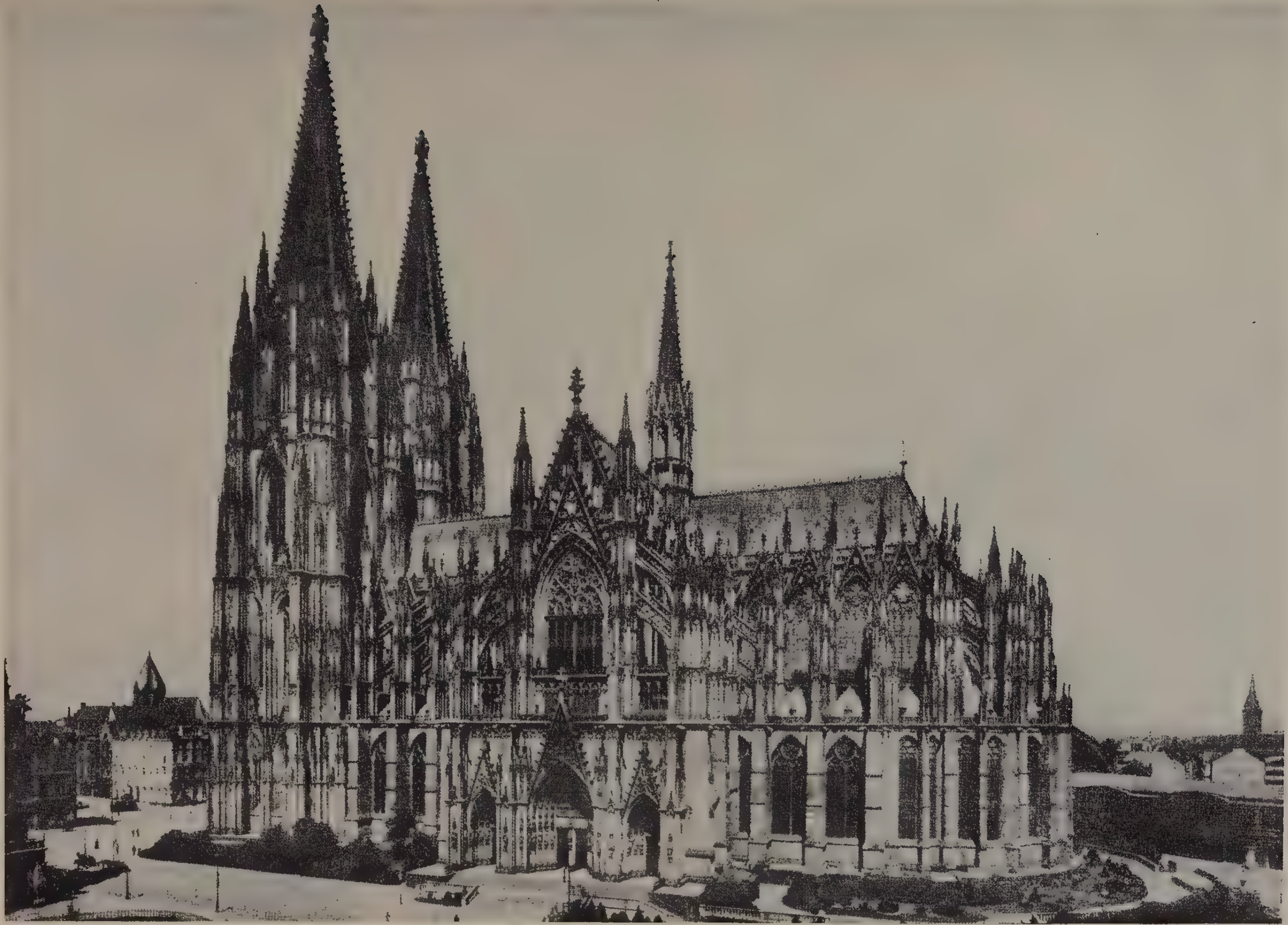
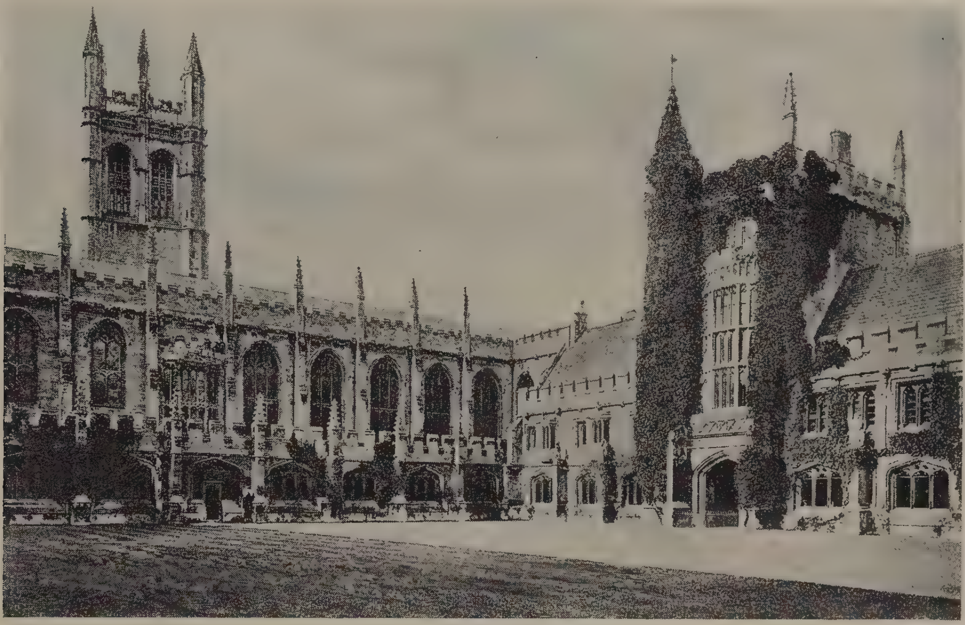


PLATE 4

CATHEDRAL OF COLOGNE, GERMANY

Cologne Cathedral, the largest church of Northern Europe, is an example of the Gothic School of architecture. The choir was built 1248–1322, and the entire Eastern half of the church, as regards plan and dimensions, is similar to Amiens Cathedral, France. At the time of the Reformation only a portion of the building, including the choir, was finished, and the cathedral was not brought to completion until the period 1842–1880. The West front—at least what we can see of it—it entirely modern, as is most of the building excepting the choir. It is a very imposing cathedral, the twin towers being 512 feet high. The new portion is carried out in the style of the old Gothic work, the responsibility for which may be laid to the "Gothic revival" that might be said to have started about the beginning of the nineteenth century, after the Gothic School had laid dormant for about three centuries.

Europe, our ecclesiastical buildings are as a rule a conglomerate mass, representing the vain efforts of men unschooled in art. While regarding the architecture of one of our large cities, some one once asked: "Who is the greatest general in the United States?" To which the reply was: "General Mess." Applied to our architecture, this reply is not far from exact. And, unfortunately, this criticism applies even more truthfully to the heterogeneous buildings of the Catholic Church than to any other class of buildings, even including the ecclesiastical structures of sectarianism. Instead of being inferior to non-Catholic ecclesiastical buildings, ours ought to be immeasurably better. In building our churches, architects have not to contend with the frightful auditorium plan, which is so prevalent in the churches of our separated brethren in Christ. The great pity has been that in this country,

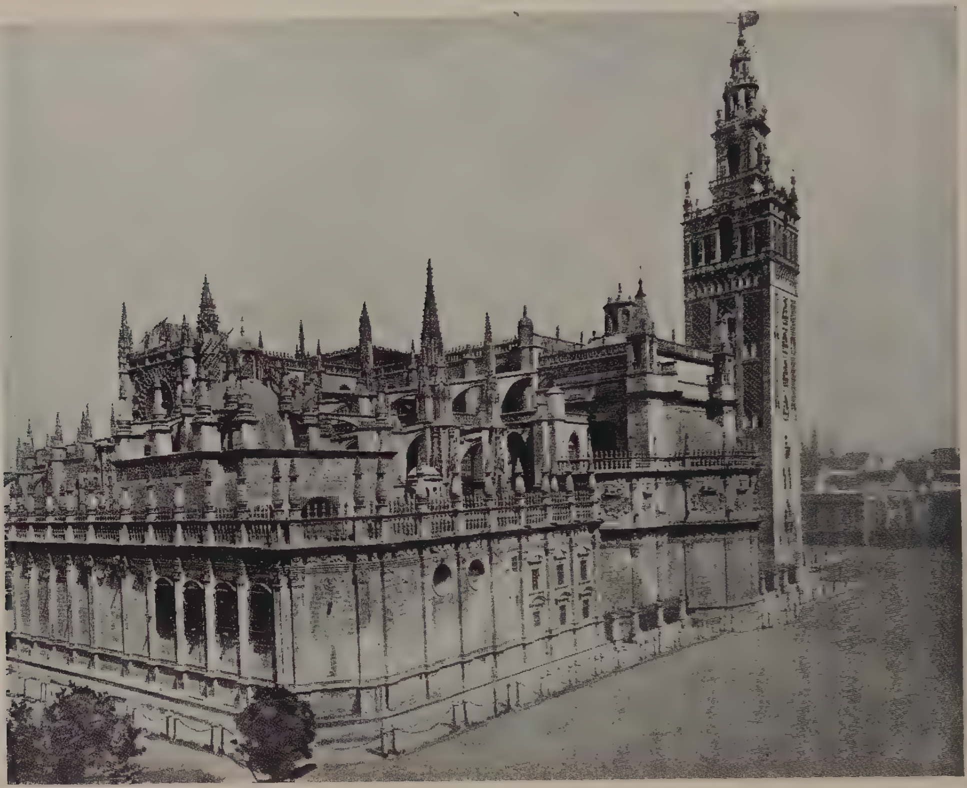


View of the Quadrangle PLATE 5

MAGDALEN COLLEGE, OXFORD, ENGLAND

Oxford University is formed of many colleges, the buildings of which date from 1249 to 1555. Magdalen College was built in 1458, as is borne out in the style of the buildings shown in the picture, which are all of the Perpendicular period of Gothic architecture. Note the broad, square tower which forms the entrance to the quadrangle, and the beautiful, tall tower at the left belonging to the college chapel and functioning as the chapel belfry.

aside from the Spanish colonial style (which is really the style of the Franciscan and other missionaries), there can be found no native inspiration for Catholic architecture to follow. Certainly, no inspiration drawn from the New England or Georgian architectural style of the Atlantic Seaboard can be appropriately applied to our churches.

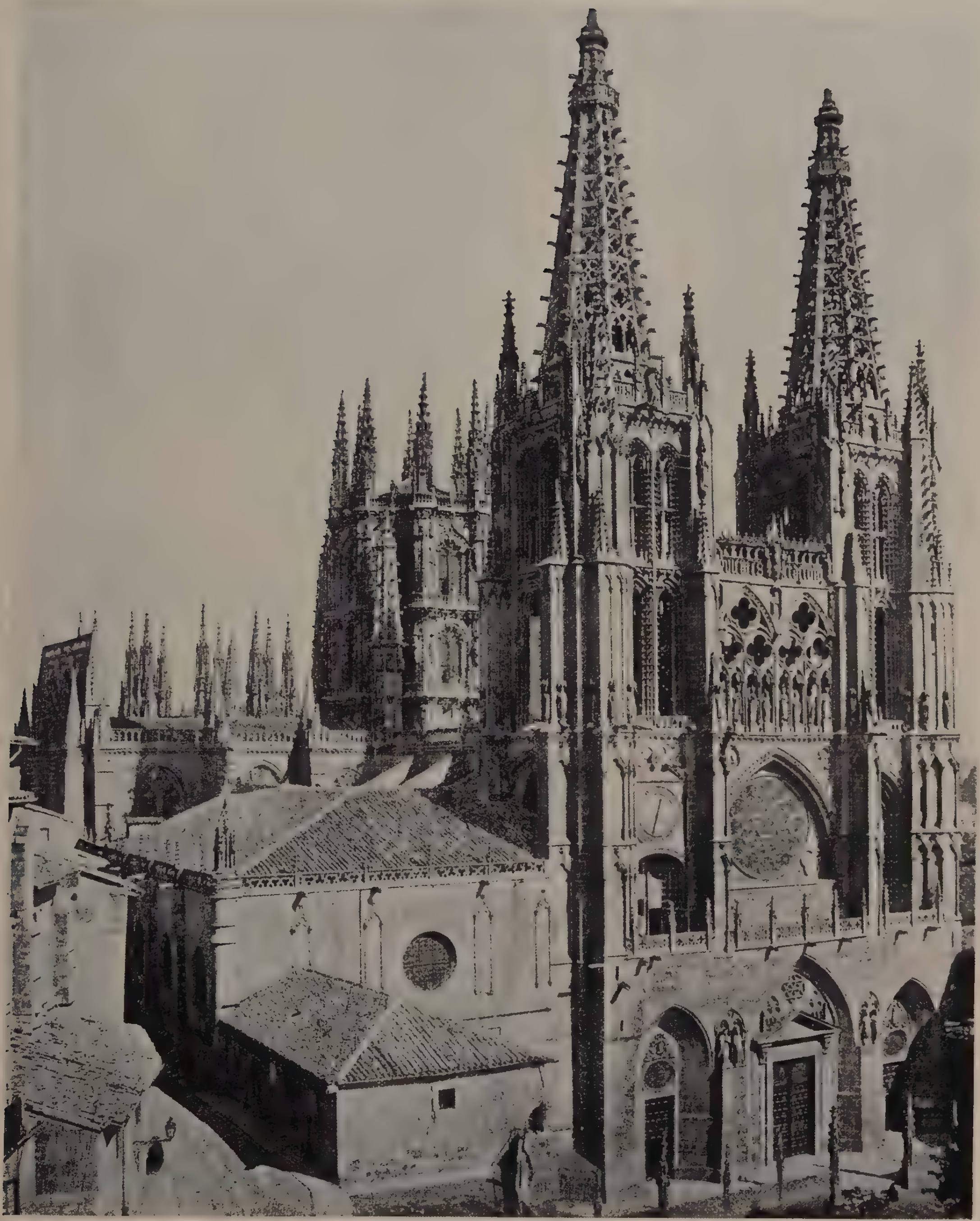


North-East View PLATE 6

CATHEDRAL OF SEVILLE, SPAIN

The Cathedral of Seville is the largest of medieval cathedrals, and next to St. Peter's at Rome the largest church in the world. It stands on a platform 590 feet long and 420 feet wide, and is built on the old foundation of a mosque. The present edifice was erected in 1410. So many chapels and other additions have been made to it since its inception that its exterior represents many different styles (Moorish, Gothic, Renaissance, Plateresque, etc.). From the ground to the bottom of the colonnade, the tower was built by the Moors. In 1568 the summit of the tower, itself 100 feet high, was erected on the Moorish shaft. The total height of the present tower is 350 feet.

Excepting the above-mentioned architecture, America had scarcely any buildings worthy of being called architecture up to about fifty years ago. But, as the immutable Church is the same throughout the world,



North-West View PLATE 7

CATHEDRAL OF BURGOS, SPAIN

H. G. Wells says of the Cathedral of Burgos: "Nothing is required to be added or taken away to afford the eye a feast as perfect as grace, symmetry, grandeur and lightness all combined are capable of producing." The exterior of this Cathedral is of white marble and built in the pure Gothic style. It has three fine towers, the pair on the West being surmounted by marble spires pierced with traceries, recalling cathedrals like that of Strassburg.

it was certainly proper to hark back to Europe for suggestions and criticisms. That inspirations have been drawn from European ecclesiasical architecture is patent to all. We have examples in plenty at hand; but how well has the spirit been recaptured, that is the question. The massive portal of a great European basilica is duplicated, but dwarfed to such pigmy proportions that it loses all of its beauty. The façade of a Gothic cathedral is to be found with its slender twin towers so widely separated that, seen from a distance, they might well belong to separate buildings. Other modified copies of European ecclesiastical

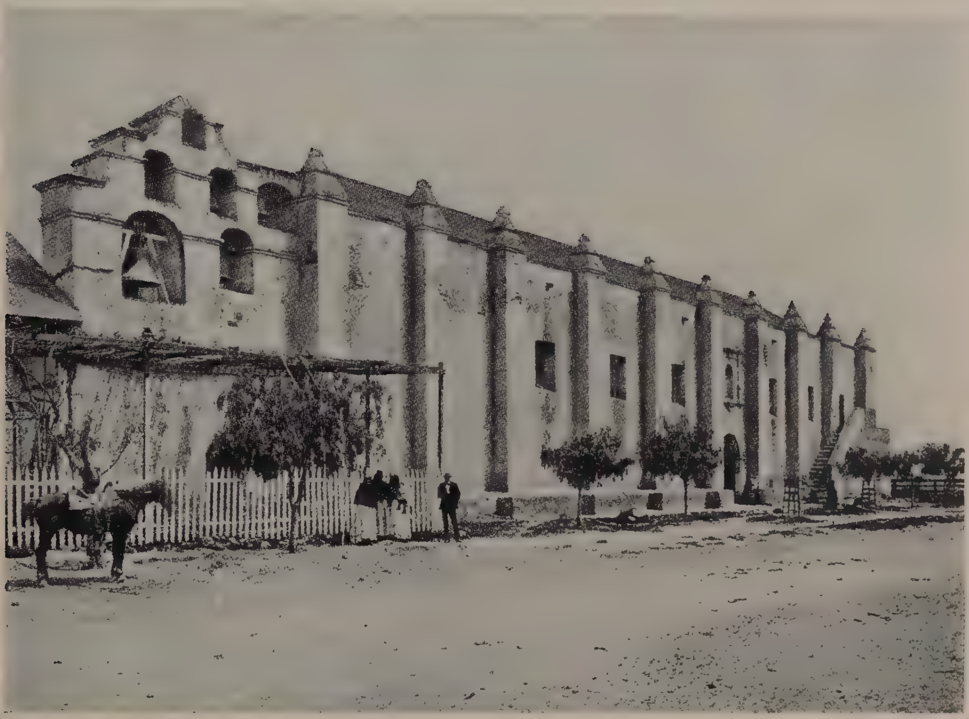
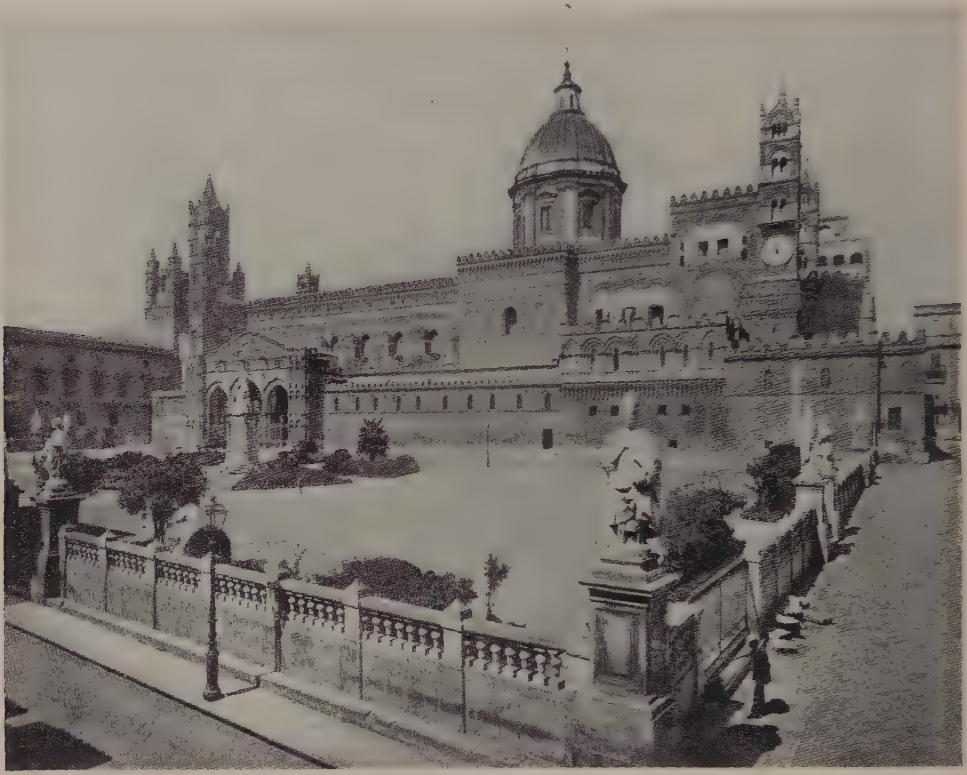


PLATE 8

MISSION OF SAN GABRIEL, CALIFORNIA

The Mission of San Gabriel, situated about twelve miles from Los Angeles, was founded by Franciscan Friars on the Feast of the Annunciation, 1771. This illustration shows the mission's stone church which was completed in 1785. The building has the same massiveness, the identical color, and the same quaint picturesque details, including the curious battlements signifying the Spanish "horn of dominion," which are to be found on the college buildings of San Fernando, Mexico City, from which the missionaries proceeded to their great spiritual conquest in California. Note the massive bell-cote at the left of the picture, which contains six charming green bronze bells of great age, hanging in the arches formed by the monks when rearing this dignified, simple and artistic example of church architecture.

works have been served up in a more or less weakened condition. We have had reproductions with modifications of nearly every kind and style of European church. Although it is most inadvisable to do so, it would really be preferable to copy the buildings exactly rather than furnish caricatures of them.



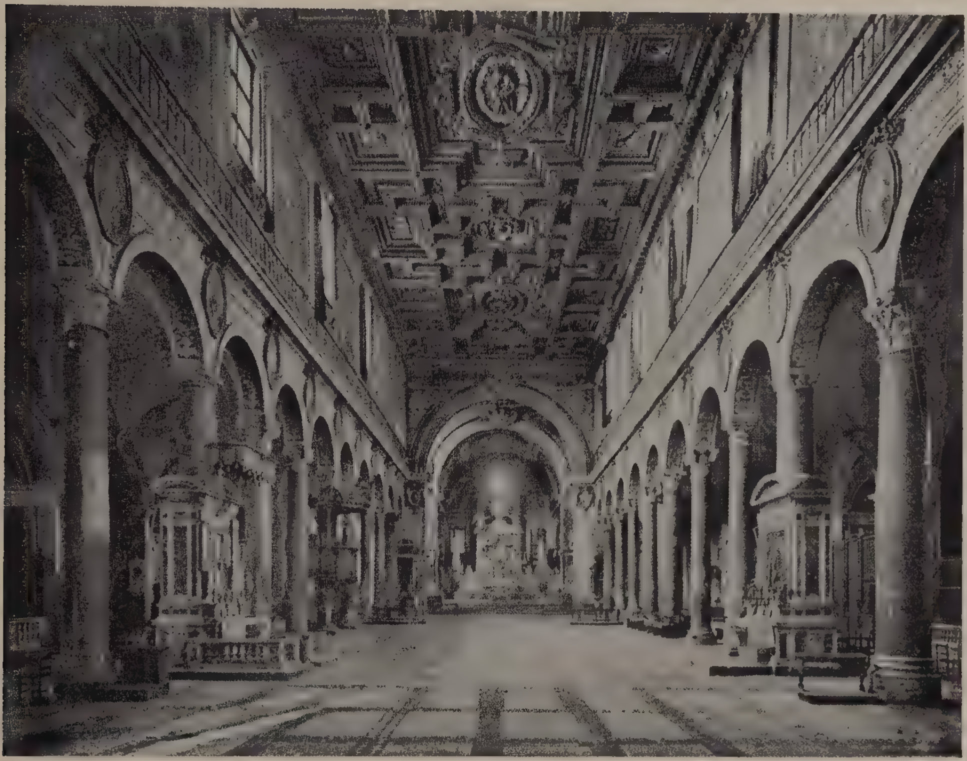
South-East View PLATE 9

CATHEDRAL OF PALERMO, SICILY

Here can be seen in picturesque confusion many styles of architecture, while harmony nevertheless reigns. Sicilian-pointed, Norman, Byzantine, Gothic and Renaissance architecture are welded into one. On the great South portal are found three pointed arches of great height. The West front was built in the fourteenth century. The dome is Renaissance, while the enclosing wall and fence are Baroque. Observe the small high lanterns that light the side chapels of the nave, and the absence of the great traceried windows so common in French and English Gothic. The ensemble has the appearance rather of a dream than of something real. The wonderful silhouettes, the rich crestings and the battlemented effects of the nave, transept and choir walls, go far towards imprinting this cathedral on one's memory. The interior is rich in fine tombs, paintings, sculpture, and other works of art, while on the exterior it is to a great extent the color that attracts us with its mellow shades of browns and yellows.

Bad proportion and lack of dignity of scale have been conspicuous;

simplicity, one of the cardinal virtues of good architecture, is hardly anywhere to be found. The interior of a pretentious cathedral will have its stone pillars filled with steel functioning as the real support of the building. The layman observes not the difference; to him it appears to be veritable stone construction. But surely all pretence and insincerity is alien to a church consecrated to the Lord who sees all.



The Interior PLATE 10

S. MARIA IN ARACŒLI, ROME

S. Maria in Aracœli (Altar of Heaven) is a very old basilica. Eighth-century documents call it the Basilica of S. Maria de Capitolio, as it is built on the Capitoline Hill near the ancient Capitol of Imperial Rome. The clerestory walls are carried by twenty-two beautiful monolithic marble columns. Nearly all of these are different, and all were taken from buildings of Imperial days; no two are of the same height, and their capitals are now Corinthian, now Composite, some high and some shallow. Even a Doric capital is found amongst them. The column bases, too, are of varied heights, styles, and kinds. The triumphal arch, which separates the nave from the choir, was erected in thanksgiving for the victory at the Battle of Lepanto. The Renaissance ceiling dates from 1571. It conceals the wooden trusses, which in churches like S. Miniato, Florence, are exposed and decorated. Two beautiful medieval ambones of thirteenth-century Cosmati work are to be found here, and the nave floor—a marvel of rich color—is composed of fragments of serpentine, porphyry, and other precious marbles.

Among John Ruskin's "Seven Lamps of Architecture" will be found "The Lamp of Truth," from which an appropriate quotation may here be given: "So I would have the Spirit or Lamp of Truth clear in the hearts of our artists and handicraftsmen, not as if the truthful practice of handicrafts could far advance the cause of truth, but because I would fain see the handicrafts themselves urged by the spurs of chivalry; and it is, indeed, marvellous to see what power and universality there is in this single principle, and how in the consulting or forgetting of it lies half the dignity or decline of every art and act of man."

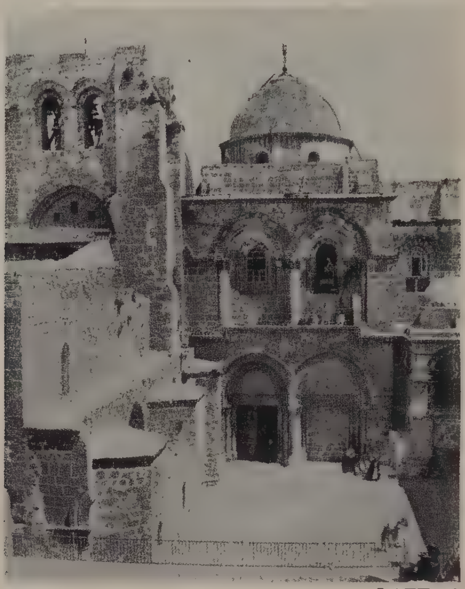
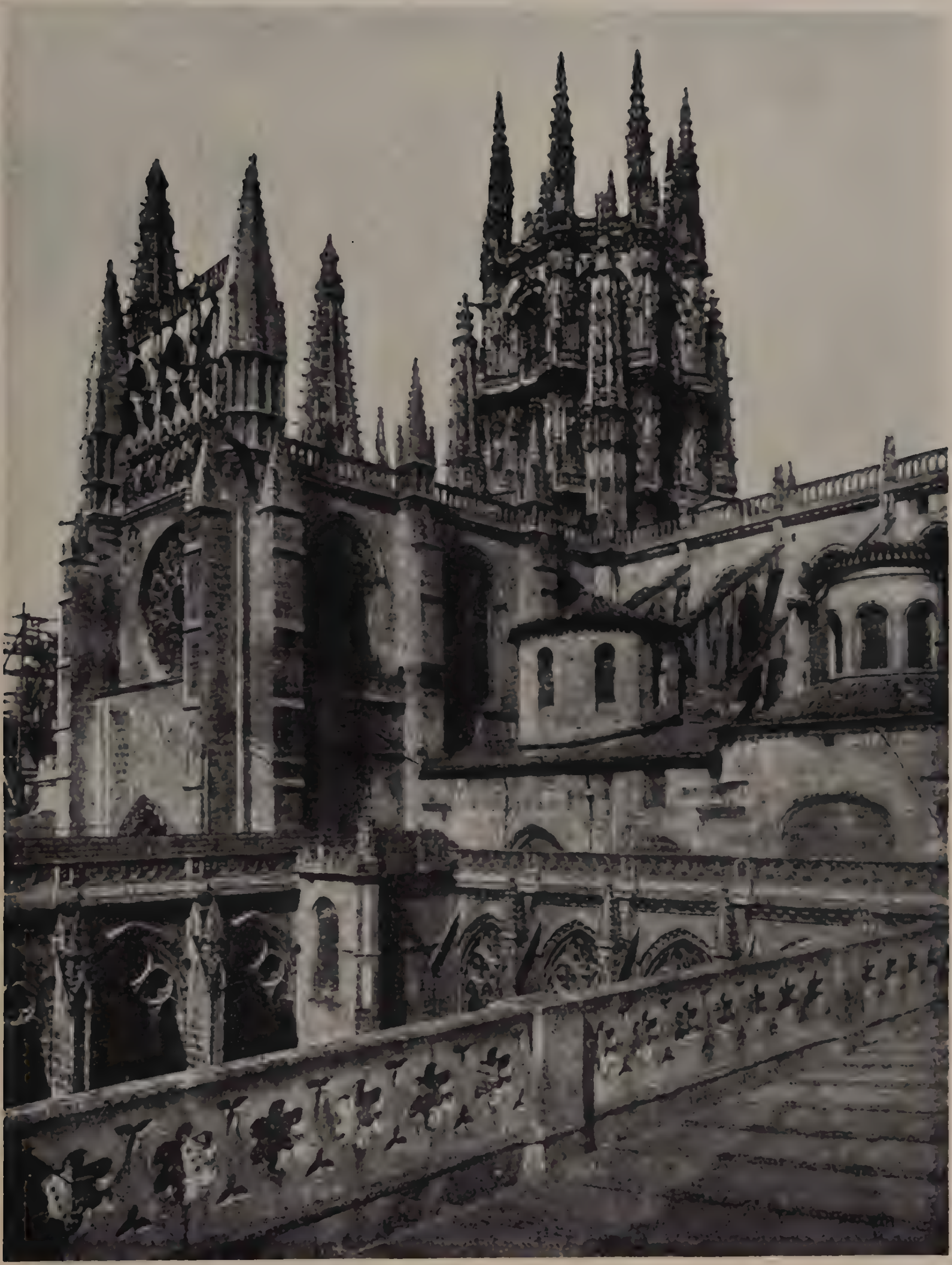


PLATE 11

Entrance. South Wing of Transept

CHURCH OF THE HOLY SEPULCHRE, JERUSALEM

Constantine erected the Church of the Holy Sepulchre in the fourth century over the Tomb of Christ. After the Saracens and Persians had damaged the work, it was rebuilt by the Crusaders and thereafter often restored. The architecture shown in this picture appears to be of the twelfth century, as it is similar to the Sicilian architecture of that period. The rotunda built over the Holy Sepulchre is eleventh-century work, while the Holy Sepulchre itself inside the building is modern. The plan of the church is cruciform, with an apse at the East end; the rotunda built over the Holy Sepulchre is at the West. A large cloister is found East of the apse, while the entrance to the church (shown in illustration) is in the South wing of the transept. A dome is built over the crossing and the rotunda is also roofed with one. The Eastern apses of three chapels appear at the left in the illustration. A great belfry is built over the chapel, to which the Northernmost apse belongs. The dome over the Holy Sepulchre, together with the cross that crowns it, can be seen back of the belfry.



(Courtesy of "The American Architect.") PLATE 12

View from the Roofs of the Cloister Walk

CATHEDRAL OF BURGOS, SPAIN

This interesting view of Burgos Cathedral shows the cloister, the South wing of the transept, the tips of the Western spires and the fine *cimborio* over the intersection of the nave and transept. The *cimborio* was completed in 1567. Spain is the country of great vaulted cloisters, some built as wide as twenty-five feet in the clear. Observe the odd way in which the aisle chapels of the cathedral are lighted by tiny domes of a later period.

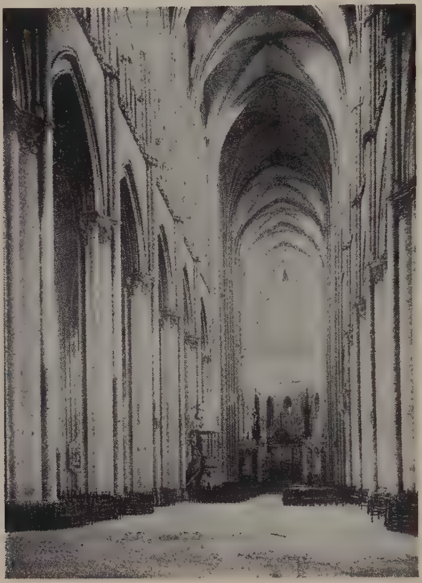
Everybody appreciates a suit of well-made clothes or a piece of furniture substantially and not shoddily constructed. And, since we will not accept shoddy clothes, cheaply made furniture, shoes or automobiles, why do we tolerate objectionable features in our Catholic buildings, particularly in our churches, where everything should be beautiful and sincere and becoming? We ought now to have reached an era of better Cath-

North-West View PLATE 13

DURHAM CATHEDRAL, ENGLAND

Durham Cathedral, formerly part of a Benedictine monastery, is a powerful building which rises picturesquely above the steep banks of the River Wear. It is to a great extent Norman, and was built in 1096–1133. The plan has a cross arm or transept (in addition to its regular transept) at the Easternmost extremity of the choir—called the Chapel of the Nine Altars. It is built in the Early English Gothic style. The central crossing tower is in the Perpendicular style. On the West front is a massive porch, called the Galilee Porch. The Norman nave was erected between 1099–1128, but its vault dates from about 1133. The nave columns are massive, and each is ornamented with a different treatment; some are chanelled, and some have chevrons, and so on. On the South side, between the transept and the West front, is the square cloister, dated 1388–1418. West of the cloister is a long building (probably the dormitory and refectory), and West of it are the monks' garden, the bowling green, the latrines, and the prison. On the South side of the cloister are the kitchen and cellars, continued East by the priory and Prior's Chapel. East of the cloister is the Chapter House. Many of these buildings remain today.

olic building. Whereas once we had perforce to be content with bare roofs over our heads and to construct buildings of the cheapest possible kind, our demands should now be for something more substantial and lasting, something more fitting for its high purpose, something designed in the spirit which emanates from the glorious monuments of Christian architecture. As heirs to a glorious heritage, we should no longer be satisfied with the tawdry and the mean. Even our smallest and least expensive churches and other buildings, no less than our more elaborate ones, would benefit greatly if they were designed by competent ecclesiastical architects, of whom happily many are now available.



The Interior PLATE 14

AMIENS CATHEDRAL, FRANCE

The Cathedral of Amiens is considered to attain in its interior to the greatest degree of perfection in all Gothic Art, and this is not difficult to understand when one studies carefully the ground plan of the building (Plate 126). Its proportions throughout are perfect. This cathedral is regarded as the Parthenon of Gothic Art. It was built 1220–1288. The great cylindrical columns, best seen at the left of the illustration, have attached to them four smaller columns which carry the clerestory arches, as well as the arches of the nave vaults and of the aisle vaults. The top of the nave vault rises 140 feet above the floor.

We have, however, no more than begun to recognize the various faults, shams and make-believes in our buildings, such as compositions

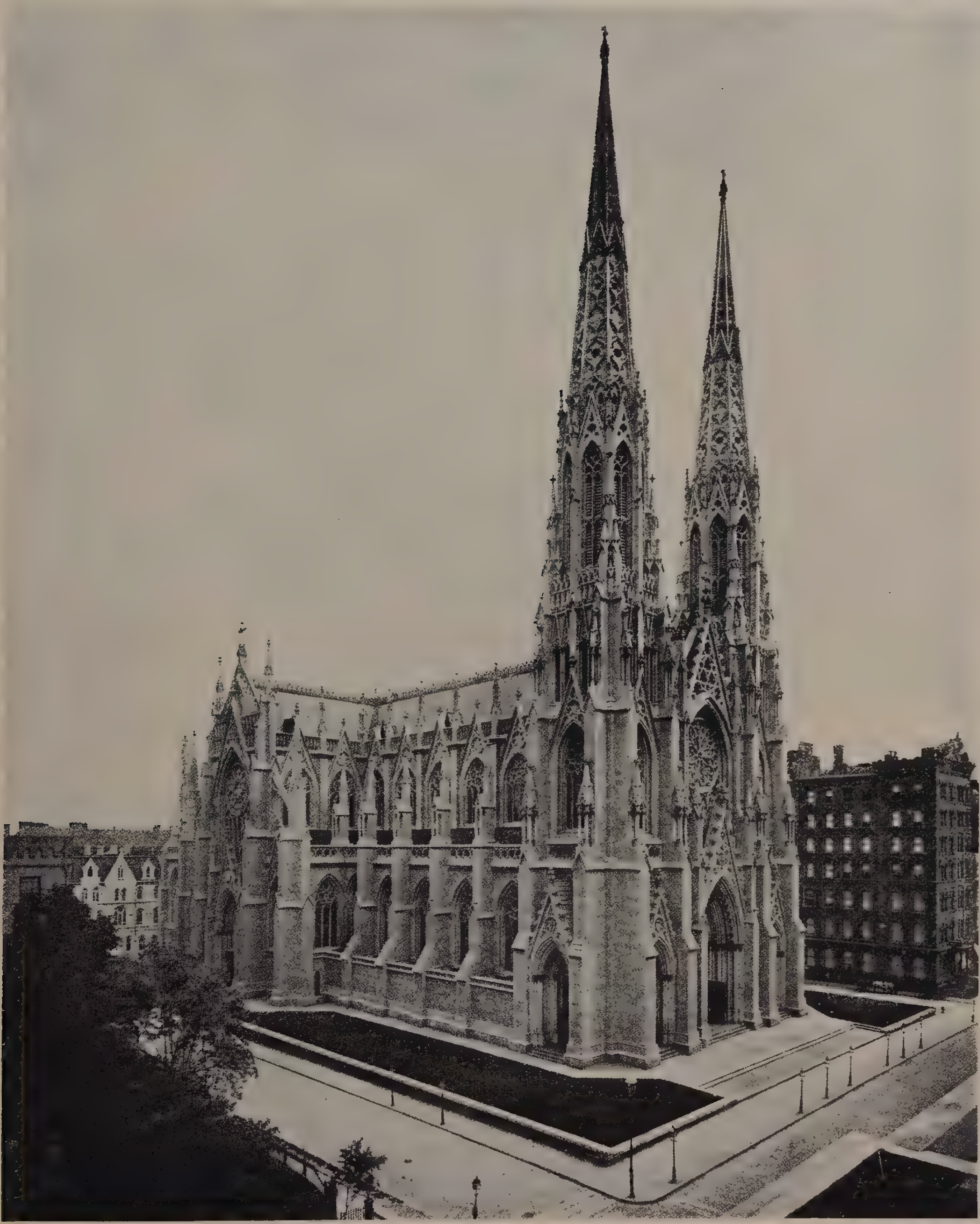
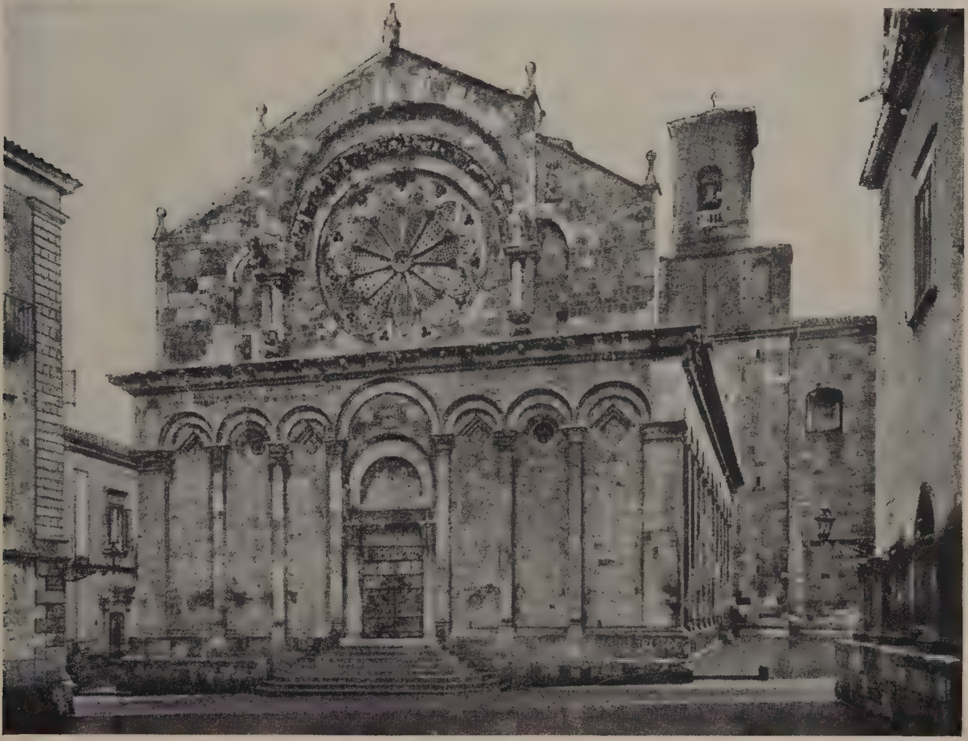


PLATE 15

ST. PATRICK'S CATHEDRAL, NEW YORK CITY

Like the famous Cathedral of Cologne, Germany (Plate 4), St. Patrick's (1858–1879) is a product of the school of the Gothic revivalists. James Renwick was the architect for this building, but his work does not include the Lady Chapel (Plate 243), which was built much later. Externally the design is simple in composition, and the edifice is, on the whole, well-proportioned and dignified.

simulating marble, synthetic stone blocks imitative of stone piers or walling, steel trusses incased in wood to suggest solid wood construction, mosaic executed in a technique imitative of oil paintings, rubber wainscoting and flooring made to look like marble, terracotta mimicking Roman travertine, not to mention the horror of a great deal of the indirect lighting and all the other shams and ignorant notions now being exploited in our ecclesiastical buildings.



South-West View PLATE 16

CATHEDRAL OF TROIA, ITALY

On the West front of this cathedral, built in the Italian Romanesque style of the eleventh century, are found (particularly on the lower story) the influences of the Cathedral of Pisa. In the superstructure a departure is made. The giant wheel window, flanked on each side by twin columns supported on lions, and the arches and gable over the rose are interesting and bear witness to the departure. The same tall pilasters and arcades as on the West front carry along the lateral façade of the church. The front does not rise proportionately to a great height, but the general effect is good because of happy proportions, simplicity of composition, and a well coördinated disposition of the ornamental parts.

Another important point has regard to the rubrics and liturgy of the Church. During the centuries following the Reformation, while the

Church was too busy repelling attacks from without to keep a rigid guard over even important non-essentials, bad rubrical habits crept in, and it is only within the last seventy-five or eighty years that some scholarly men have been attempting to deliver us from the mire of erroneous apprehensions under which we have been laboring. Liturgically, architects are also, it is to be hoped, beginning to see the dawn, and many of the unthinkable things that have been designed in the past must sooner or later give way to the correct and beautiful.

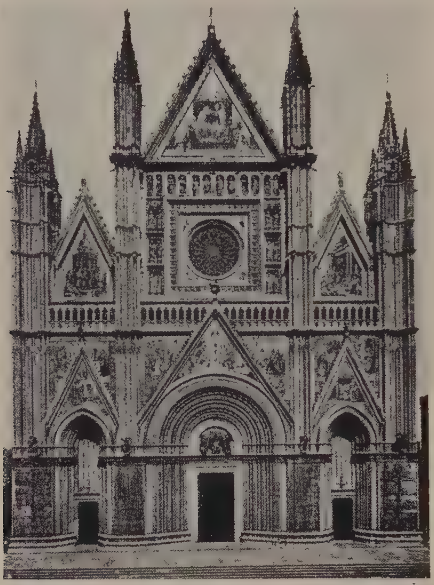


PLATE 17

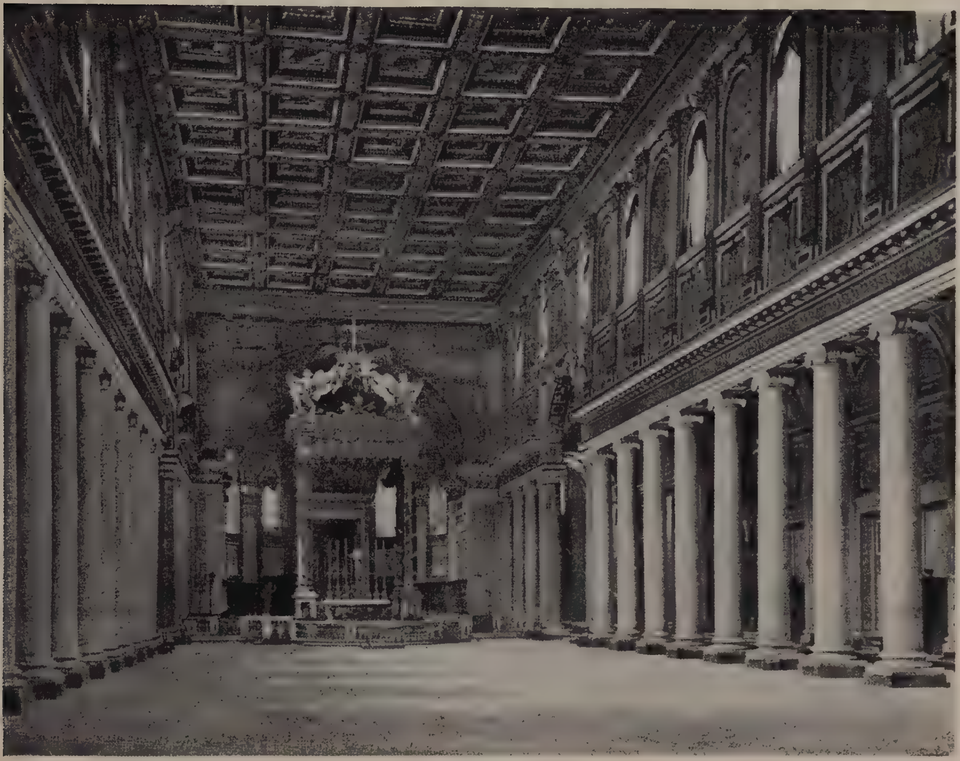
The West Front

ORVIETO CATHEDRAL, ITALY

Orvieto Cathedral was constructed between the years 1290–1310. The West front is similar in composition to that of Siena Cathedral (Plate 108), although a little less vigorous in the execution of its details. One of the principal differences between this façade and that at Siena is that here the two pinnacles separating the nave from the aisles carry down to the ground, coördinating the upper and lower portions of the building in a happier manner than that to be found at Siena. The sides of the building are of striped marble like Pisa Cathedral (Plate 27). The edifice is built on a wide platform raised on seven or eight steps which extend around the front and sides of the building. The plan is cruciform, with projecting semi-circular chapels. The interior, influenced by the early basilicas, has round pillars of great height with round arches.

Today the eccesiastical architect must make liturgy one of his most important studies; in addition, his function is to take into consideration the practical requirements of the church or other building, and mold its elements (the walls, the roof, and everything contained therein) into a harmonious and lovely whole. The poet Byron says:

> Who doth not feel, until his failing sight
> Faints into dimness with its own delight,
> His changing cheek, his sinking heart confess,
> The might—the majesty of loveliness?



The Interior PLATE 18

THE BASILICA OF S. MARIA MAGGIORE, ROME

There is evidence that this edifice was originally an Imperial Roman basilica. Pope Sixtus III transformed it into a church in 432, and it was he who caused the gorgeous mosaics, representing scenes from the Old Testament, to be placed over the entablatures. The triumphal arch also contains mosaics of his time. The pavement dates from the twelfth century. The ceiling is in the Renaissance style, and was decorated with the first gold brought over from America. The building has single aisles, and thirty-eight Hymetian and four granite Ionic columns divide the nave from the aisles on each side. Note that the columns, bases, and Ionic capitals are all uniform, which gives further evidence of its being originally Roman. The exterior of this church is an uninteresting, Late Renaissance restoration.

Now, by loveliness or beauty I do not necessarily mean expensive and ornate materials. How often, when one criticizes a poorly designed, ill-proportioned building, is one met by the reply: "Well, they didn't have the money!" Now, even though constructed out of inexpensive materials, a plain and simple church may be as worthy and beautiful in the sight of the Lord and of men as the grandest of cathedrals, provided that its simplicity has been dignified by the touch of genuine ecclesiastical art, and that imitation walls and fittings do not exhale an atmosphere of hypocrisy. What would Christ have thought of the poor widow, if she had offered a gilded penny!

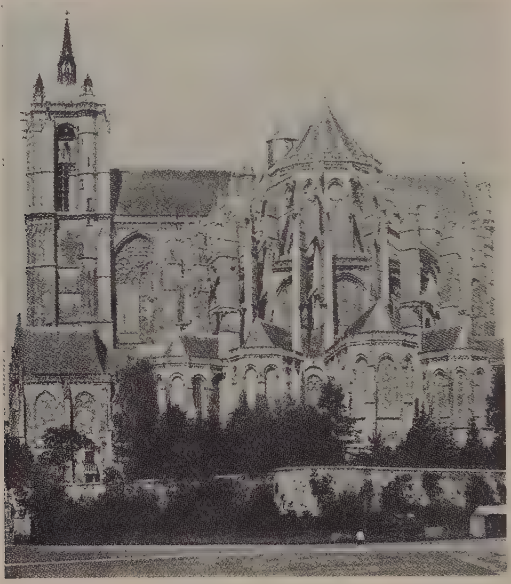


PLATE 19

View of the Chevet

CATHEDRAL OF LE MANS, FRANCE

The outstanding feature of the Cathedral of Le Mans is its noble chevet of thirteen large radiating chapels, which project to an unusual extent. The choir, chevet and transept are Gothic, and date from 1220–1254, while the nave is Romanesque of the twelfth century. The great choir and chevet alone are supposed to be larger than the whole Cathedral of Soissons, France. The flying buttress and slender windows recall Notre Dame (Plate 113) and Bourges (Plate 223).

The fantastic notion that a building well proportioned and beautiful, designed by a competent architect, must be necessarily more costly, is happily fast disappearing from the public mind. Good architecture is a matter of correct proportion and discernment, and the latter costs no more than poor proportion and lack of taste. For the moment, we shall

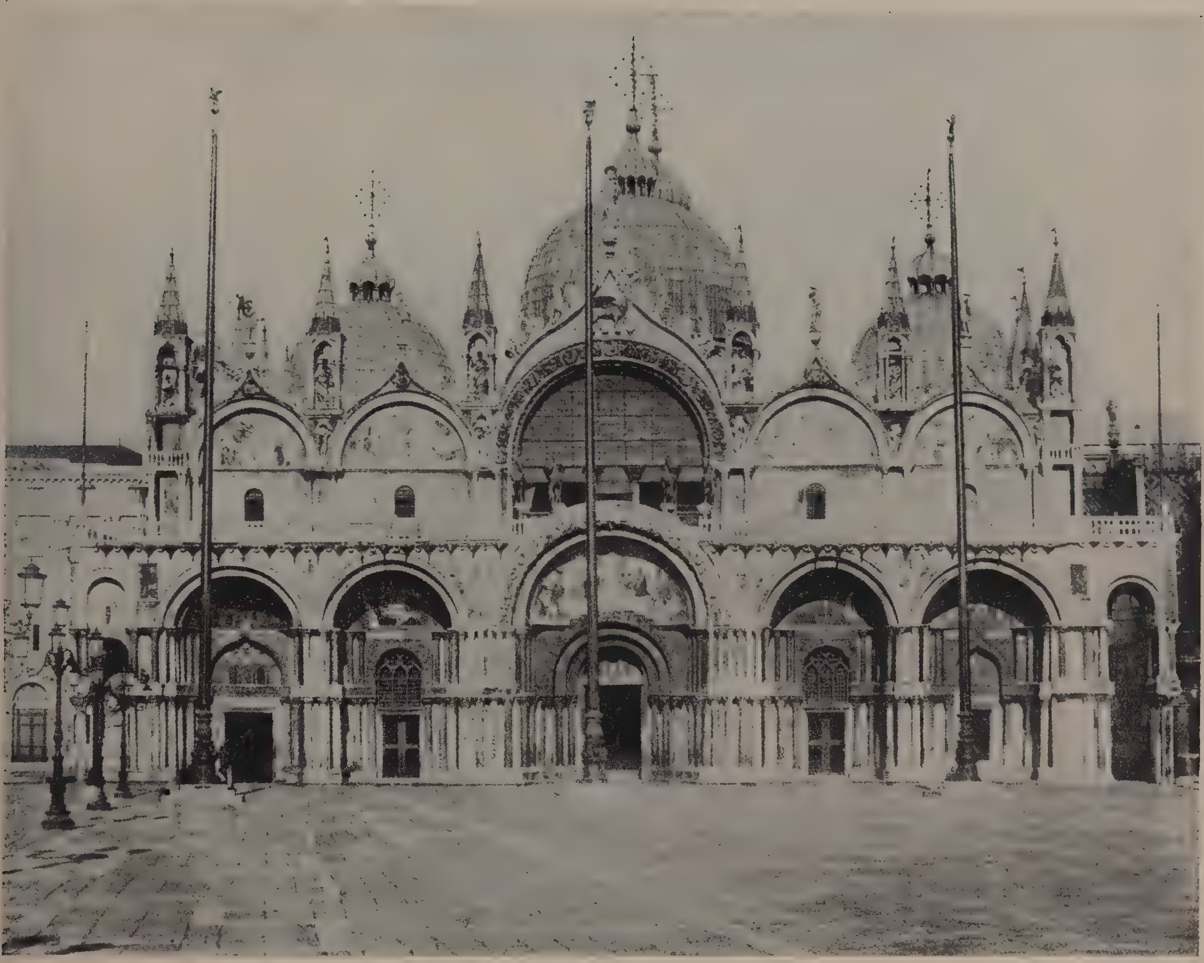


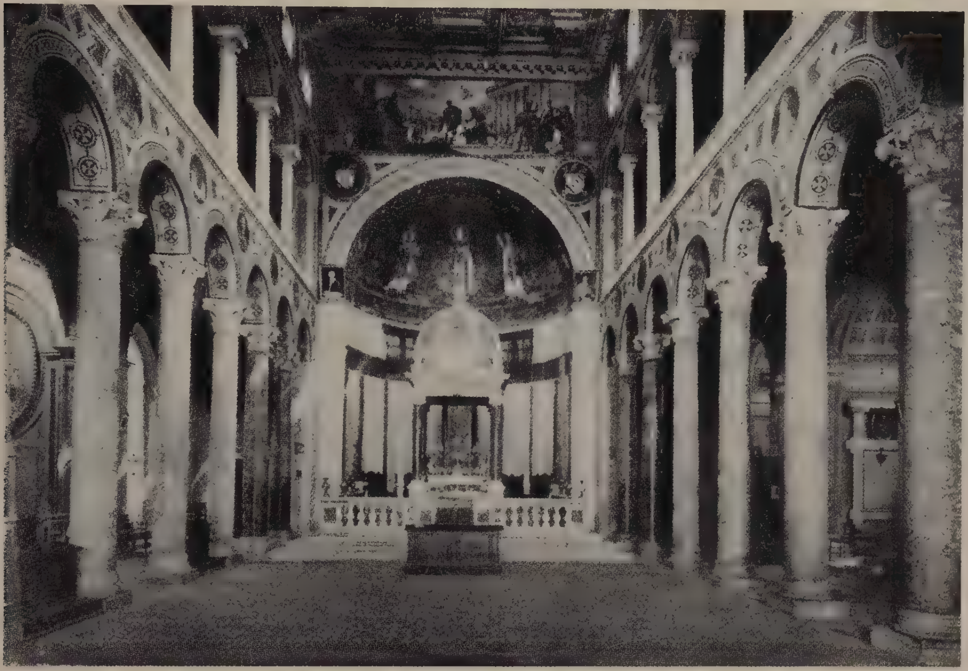
PLATE 20

ST. MARK'S CATHEDRAL, VENICE

This building was erected between 1042 and 1071. It is a Byzantine or dome-styled building in the form of a Greek Cross, with a dome over the crossing and one over each arm of the cross. The central dome is 42 feet in diameter. Single aisles are found in the nave, choir, and transept. The narthex returns down each side to the transept. A semi-circular apse terminates the East end of the choir. The bell tower—the famous Campanile belonging to the church—stands quite a distance in front of the cathedral in the piazza or public square. The site of the church is that on which stood the original basilica erected in 864 as a repository for the body of St. Mark the Evangelist. It is said that the model for this building was the Church of the Apostles founded by Constantine in Constantinople. Priceless marble and mosaics cover every inch of wall, pier, and vault. On gold backgrounds are depicted in magnificent glass mosaics the Creation, the Fall of Man, the Redemption, Christ's miracles, and legends of the Saints.

say nothing of the saving that a competent architect can effect by the full utilization of the available resources and the elimination of waste.

Catholic ecclesiastical architecture rightfully includes not only churches and chapels, but schools, convents, rectories, chanceries, seminaries, universities, colleges, academies, hospitals, asylums, Knights of Columbus buildings, lyceums, and in fact all buildings pertaining to the Catholic Church, for most of them contain chapels, and the purpose of practically all is, in one way or another, to teach religion and bring souls nearer to God. Therefore, without exception, they should be planned by architects who are ecclesiastical specialists of standing, if proper attention is to be paid to their religious expression and character.

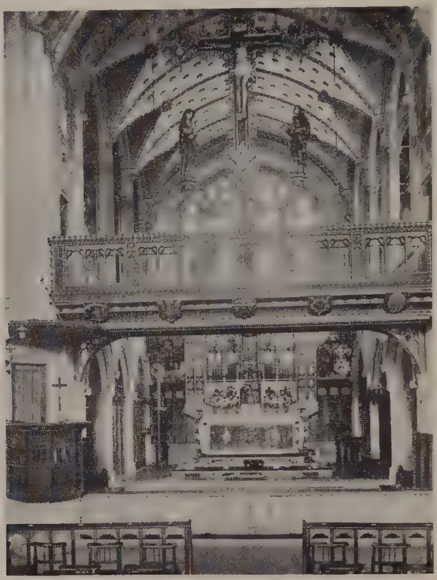


The Interior PLATE 21

BASILICA OF ST. AGNES OUTSIDE THE WALLS, ROME

In 324 Constantine founded this early Christian basilica over the tomb of St. Agnes. Note the superposed columns; the upper tiers on each side form galleries which were probably, as in the Hagia Sophia at Constantinople, used by the women. Sixteen beautiful marble columns, eight on each side, separate aisles and nave. The columns in the galleries are likewise of marble, and most probably were all taken from some older building—perhaps an Imperial Roman temple or some other building which had fallen into ruin. Here is an example of a church placed with the apse towards the West, as was customary in the very early days of the Church when the priest faced the faithful while saying Mass.

Herein we find the best means of correcting the shameful state of affairs in which Catholic ecclesiastical art finds itself enmeshed today. Here is an open road which will conduct us to the realization of buildings embodying the correct principles of Catholic architecture. And not only is this road open, but it is moreover wide, easy, and without pitfalls. If we wish our churches to recover the glorious Catholic tradition, they must be built by ecclesiastical architects of outstanding artistic merit—men who are themselves steeped in that tradition—instead of by commercial architects.



(J. F. Bentley, Architect.) PLATE 22

Sanctuary and Rood Gallery (Modern)

HOLY ROOD CHURCH, WATFORD, ENGLAND

May I, therefore, ask indulgence while I enter a plea for that happily growing band of Catholic specialists, who have already given to our country noble places of worship? These specialists are men of long artistic training, who have spent years in studying the ecclesiastical monuments of Europe, thus imbibing at their very source the glorious beauties of Christian architecture. A structure that in the hands of one not similarly trained would be a mere mass of brick and stone, becomes under their skill and inspiration a monumental edifice and a true House of God. Keenly appreciative of their privilege in being allowed to devote their talents and training to so august a task, they spare neither time nor labor in the study and shaping of their plans for the creation of a building that will be artistically and practically adapted for the end in view. The liturgical purpose of an edifice, which is so commonly ignored or ill-appreciated by the commercial architect, will receive their thorough consideration, for after all the final criterion of a church is the extent to which it is adapted to accommodate and enhance liturgical worship.

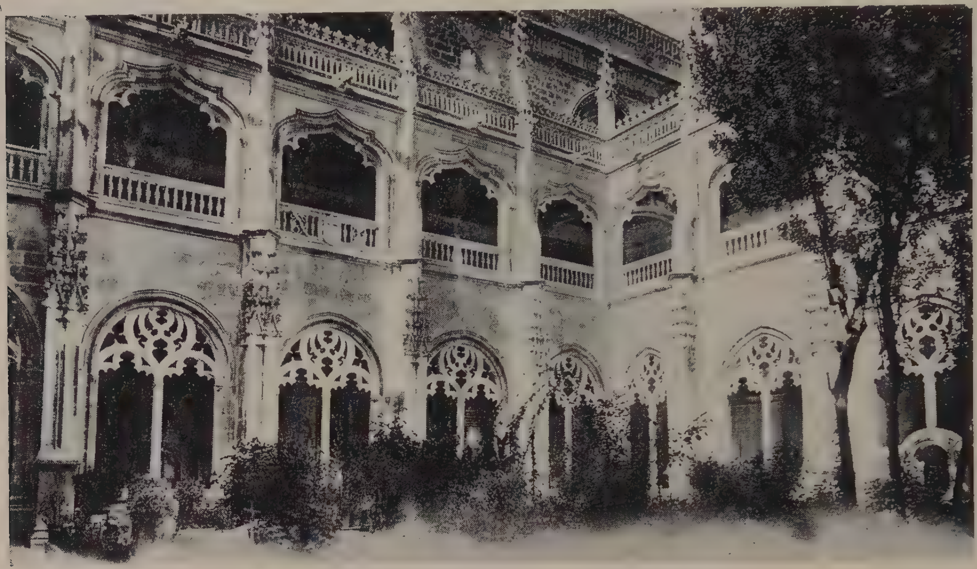
(George Grasegger, Sculptor.) PLATE 23

Crucifixion Group (Modern)

MUSEUM, COLOGNE, GERMANY

Such an architect also has at heart the interests of his client (who is really his Church), and sees that for the funds he is dispensing there is produced a worthy and substantial building. The building designed by him will be less expensive to construct because of its simplicity in plan and composition, and it will not be full of sham construction, false materials, awkward joints, and fussy notions, all of which tend to lessen its dignity, while increasing its cost. Such an architect also understands engineering and its principles thoroughly, and hence will construct a more practical building; and, since he is likewise an artist, he will take a keen interest in seeing that the child of his brain is carried out perfectly in every detail, liturgical, practical and æsthetic.

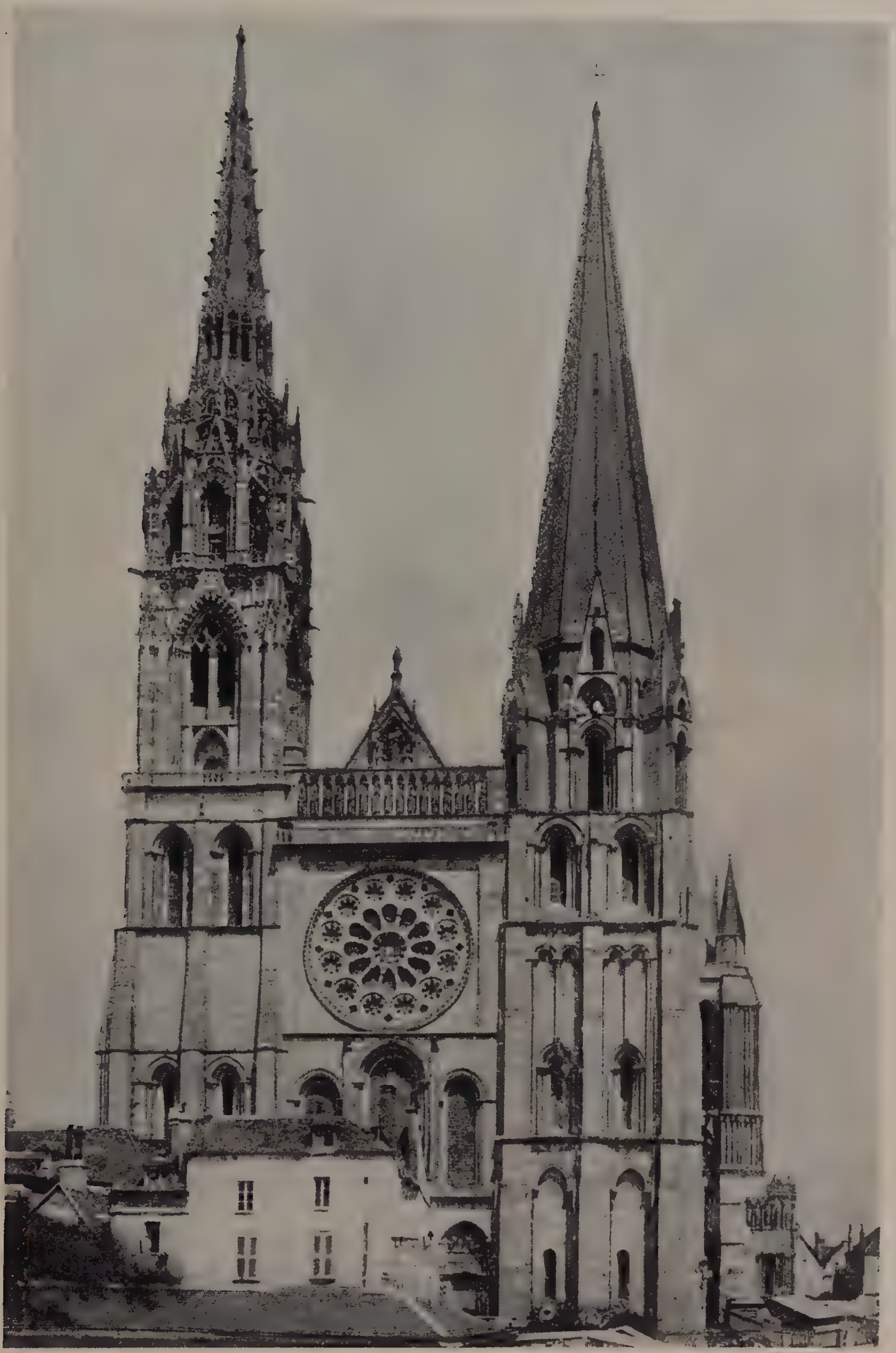
Thus, the first and most important thing to do, if one desires to erect an ecclesiastical building of merit, is to select a recognized ecclesiastical specialist to make the plans for the building—that is, a specialist who, by the established quality of the work he has produced, has demonstrated that he possesses the ability to design artistic and well-proportioned ecclesiastical buildings. No matter what efforts you make, no matter how much money you spend, if the architect is not artistic and competent, your



View of Cloister PLATE 24

SAN JUAN DE LOS REYES, TOLEDO, SPAIN

San Juan de los Reyes, built about 1476, is a characteristic example of Late Spanish Gothic, manifesting signs of the incoming Renaissance art. The function of this building is similar to that performed by the Chapel of Henry VII in Westminster Abbey, London, England. Built by Ferdinand and Isabella, the patrons of Christopher Columbus, the building is crowned by a *cimborio* (which, however, is not shown in this illustration), and the interior contains raised galleries for the use of royalty. The two-storied cloisters in this illustration are considered to be the finest Late Gothic creations in Spain. The buttresses, pinnacles and parapet are rich. The lower openings are high and contain traceries, while the second story openings are more horizontal in form and empty of tracery. Some of the first floor arches are round, while others are dull pointed. The upper story arches are interestingly formed broken ogee arches. The cloisters have in their interior beautiful vaultings in stone and canopied niches containing statues on the piers.



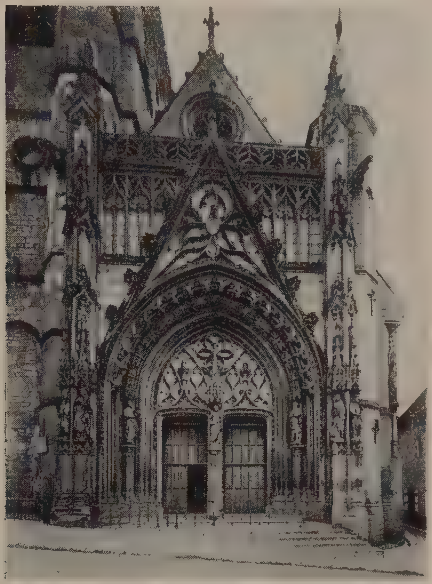
The West Front PLATE 25

CATHEDRAL OF CHARTRES, FRANCE

In the West front of Chartres we find many periods of the Gothic style. The twelfth-century sculptures of the Romanesque-Byzantine type on the West portal (not seen in this picture) are examples of the beginnings of French sculpture as it emerged from the severity of Byzantine types. The entire South tower is twelfth-century work, while the top of the North tower was completed in 1506.

buildings will be a poor return for the time, money and effort you have devoted to them.

Art is the handmaid and expression of religion, and the Church is the mother of all arts. The very best efforts of the brain and hand of man should be spent on our Catholic churches and other ecclesiastical edifices. Why, then, is so much of our work entrusted to others, when it is possible to secure ecclesiastical specialists? It is well to lay particular emphasis upon the fact that, if there has been an occasional good example in Catholic architecture within the last few years, it has but rarely been a school, convent, institution, and so on. There was perhaps a time when there existed a woeful lack of trained craftsmen; but that excuse exists no longer. Sufficient funds to build well are now generally available, and today plenty of good craftsmen are at hand.



The Doorway PLATE 26

CHURCH OF THE HOLY SEPULCHRE, MONTDIDIER, FRANCE

The doorway of this church is a classic; that is to say, one of the classics of Gothic art. It is as faultless in its way as the nave of Amiens Cathedral. The style is Flamboyant of the fifteenth century. The two doors under one arch symbolize the dual nature of Christ.

Let us by all means remedy the sad state in which Catholic architecture finds itself. This can be done by employing only properly qualified architects. Many may now be found who can furnish standing proofs of their ability in the shape of erected and completed churches and other buildings, the quality of which, in the opinion of their peers, is considered artistically superior.

And, even at the risk of being suspected of special pleading, I would strongly urge that the architect chosen for our ecclesiastical buildings should always be a Catholic. There are Catholic architects not one whit less capable professionally than non-Catholics; on the contrary, for our work they are far more proficient. The non-Catholic has little knowledge or appreciation of our liturgy, and less of our beautiful symbolism. How, then, can he give utterance to a faith that is not a living part of his very fiber and soul? The Catholic architect, on the other hand, is one who has made the (for him) momentous decision to devote all his talents to the service of his Church. Once he has attained a repute in the Catholic field, he will seek vainly for commissions outside the fold. This is, of course, no plea that professional shortcomings should be overlooked in the selection of an architect, for such a policy would result in the perpetuation of our present bad "architecture," which must make all persons acquainted with Catholic traditions in art hang their heads in mortification and shame.

As heirs to a glorious heritage and fortunate citizens of a land possessing wealth greater than that of any other nation in history, we have it in our power to inaugurate a new era of Christian culture and art, if we rise to a full sense of our responsibilities. All the material resources are available; high professional ability and talent are at our command. If these resources are wisely utilized, and this talent is not allowed to lie fallow, we can show the world that, in this teeming twentieth century as in the Middle Ages, the Catholic Church is the mother of both beauty and truth. And, in cultivating the true and beautiful in art, the Catholic priest has it in his power to give to God a fitting temple for His worship, to leave to posterity a priceless gift of beauty, and to erect for himself a monument which will stand the ravages of time, and will, in the moving eloquence of art, repeat to succeeding generations the message that he himself preached during life.

CHAPTER II

ARCHITECTURE AS AN ART, AND RELATIONS WITH ARCHITECT AND CONTRACTOR

IN the first chapter I called attention to the glories of Catholic architecture of former times, and stated that architecture is an art which should find its first and noblest expression in the House of God and in other ecclesiastical buildings. In addition, I emphasized the necessity of choosing only fully competent Catholic ecclesiastical specialists to prepare the plans, because only by this method can one secure buildings at all worthy of comparison with the architectural creations of those older and more artistic times.

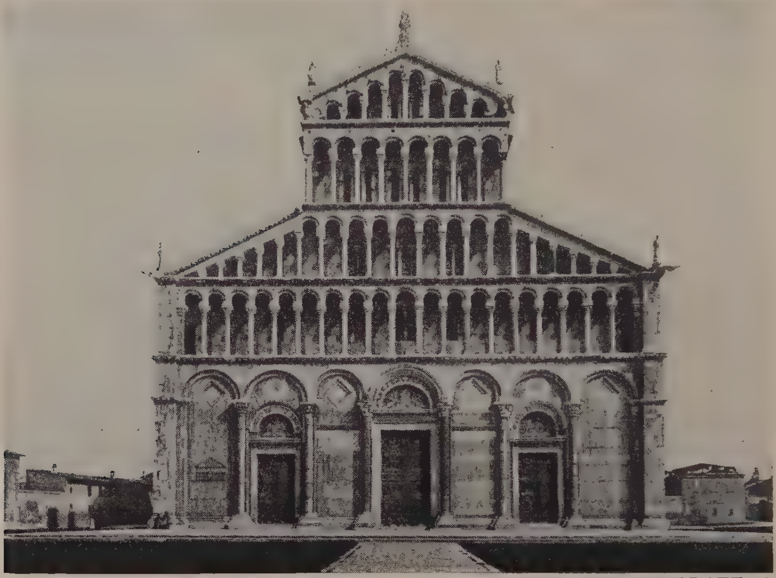
In the present chapter, I shall briefly discuss architecture as an art and the relation between architecture and its sister arts, and shall then give some advice as to the relations that should obtain between owners, architects, and contractors. Finally, I shall make some general comments on construction, materials and supervision.

Of the five arts, poetry, music, painting, sculpture and architecture, the last alone is an exigency of life. It is sometimes called "the most useful of the fine arts and the finest of the useful arts." The sister arts of architecture are sculpture and painting; in fact, sculpture might be rightfully described as the twin sister of architecture.

The sister arts of architecture are entirely independent of utility, or are only by chance connected with it. They emanate wholly from a desire for something beautiful, whereas architecture is primarily the resultant of practical requirements, beauty being but an adjunct.

From one point of view, the twin sisters, architecture and sculpture, are indeed identical, for each consists in modeling in three dimensions certain materials in forms pleasing to the eye. Because of the regrettable divorce existing today between the craftsman and the architect, this relation between sculpture and architecture is now generally forgotten. In medieval times, an architect was a sculptor, and a sculptor an architect; and even late in the Renaissance period sculptors like Michelangelo, Sansovino and others became architects of great renown.

The real parting of the ways between these two arts occurs at the point when it becomes necessary to make architecture serve some useful function—for example, as a place of worship. Then mere beauty of form ceases to be the first consideration. Walls and roofs must protect the spaces used by the people for the performance of their religious duties, and special and convenient places are required in which the clergy can conduct the religious functions.

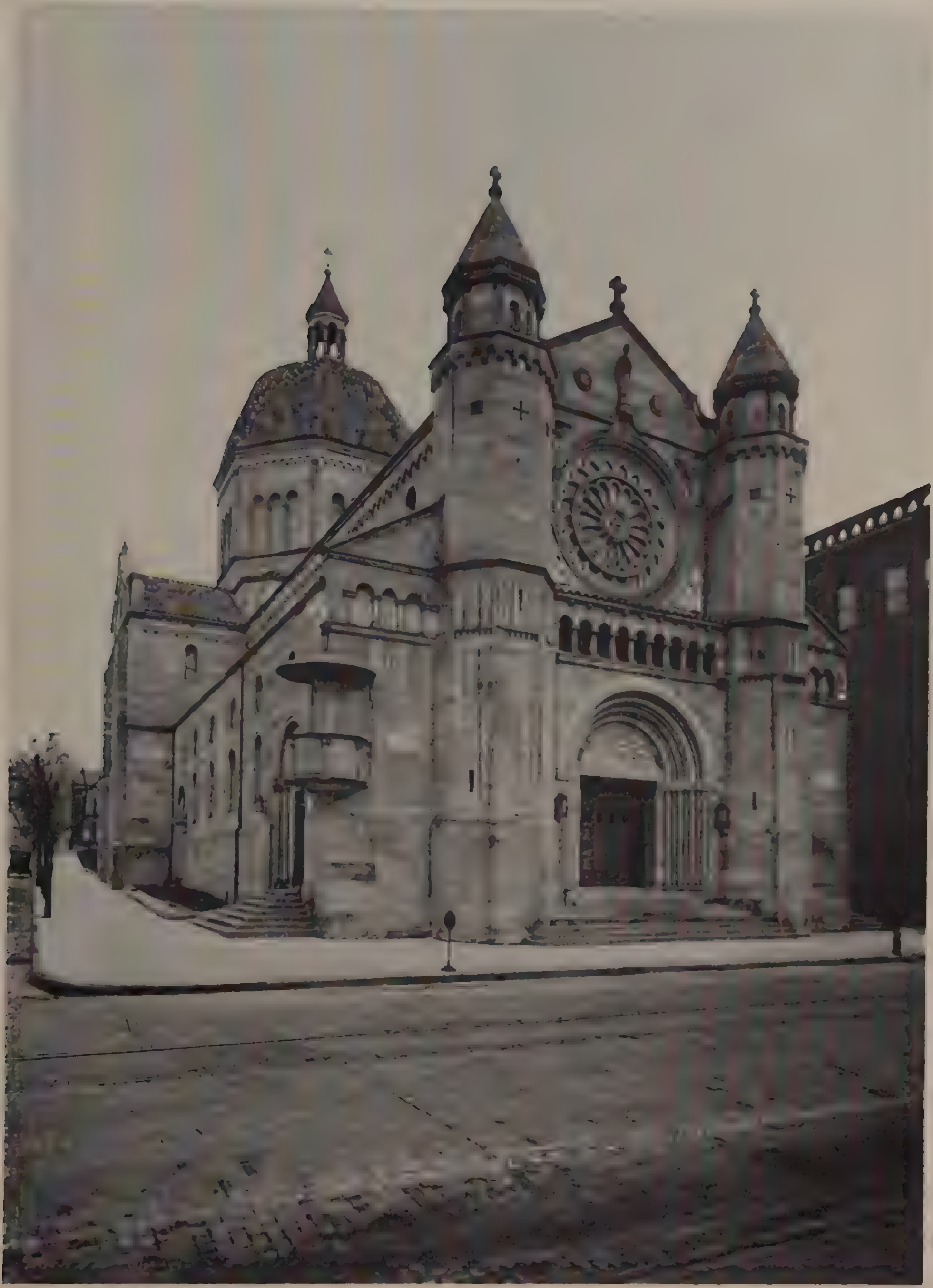


The West Front PLATE 27

CATHEDRAL OF PISA, ITALY

The silhouette of the façade of this cathedral is most dignified, and the relation of the various parts of the composition are well-coördinated. The various stories of deep-shadowed, open arcades, rising even into the gable, give a great deal of color to this great masterpiece. Three door-openings, happily placed on the front, are well related to one another and to the area of the wall surface in general.

When an edifice is so constructed that it satisfies well all its practical requirements, it is said to have a good plan. The plan is the first and most important thing towards the achieving of an artistic and prac-



(Edward J. Weber, Architect.) PLATE 28

ST. JOSEPH'S CATHEDRAL, WHEELING, W. VA.

tical result in a building. An edifice which is accurately planned to answer its *raison d'être* will be always useful, and may become beautiful.

Thus, of primary importance in a building or group of buildings is usefulness in plan. The church must be a suitable place for the performance of liturgical functions. J. G. Holland says: "The temple of art is built of words. Painting and sculpture and music are but the

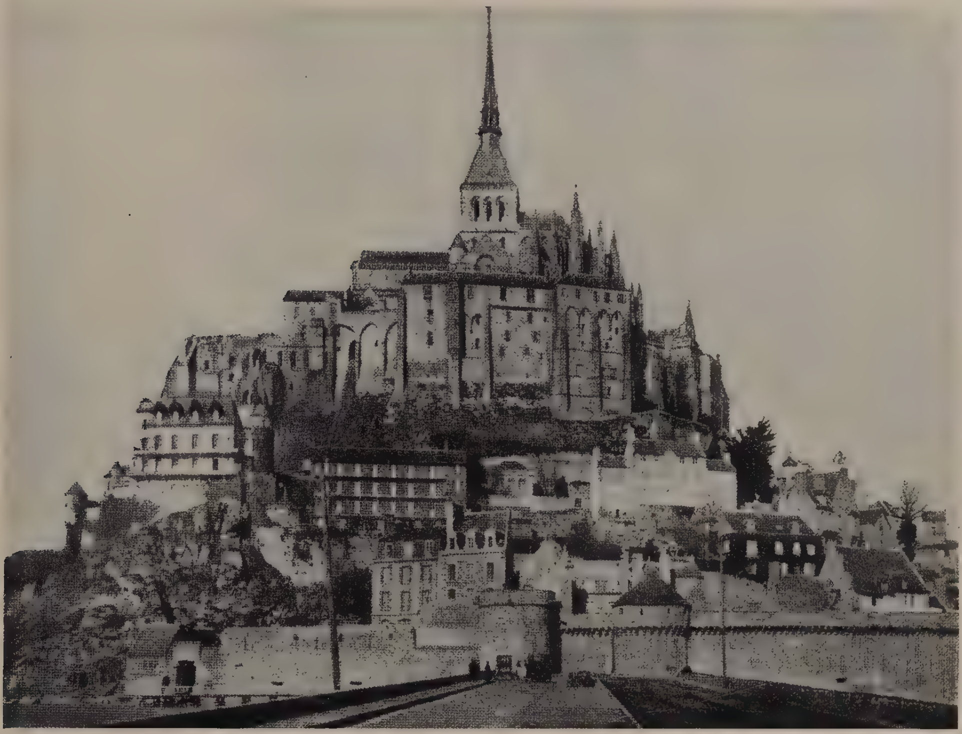


PLATE 29

MONT ST. MICHEL, NORMANDY, FRANCE

Mont St. Michel, a Benedictine Abbey under the patronage of the great Archangel, is one of the most stupendous works of man. It stands on a vast rock, although, to be exact, much is hewn out of the rock. The town is built at the base of the rock. Although the monastery was founded in 708, it was not until 1017 that the present scheme of buildings was begun. The abbey church crowns the whole, and the platform on which it stands is the summit of the rock, 300 feet above the sea. The building operations covered a period of five centuries, for it was not until the year 1520 that the Flamboyant choir seen at the right of the group was brought to completion. It is difficult to describe this marvelous monastic group, but, roughly speaking, there are three stories—the two lower ones of which form rings around the rock. On the North side is *La Marveille,* one of the buildings of the group. The first story of *La Marveille* was used as the cellar and almonry, the second for the refectory and hall of the knights, while the third floor served as dormitory and cloister. The cloister is considered one of the gems of the composition. The church is cruciform in plan, with a Norman nave. The steeple which crowns the whole is of copper, and is surmounted by a gilded figure of St. Michael.

blazon of its windows, borrowing all their significance from the light, and suggestive only of the temple's uses." The school or college must satisfy the conveniences for teaching; the rectory and the convent must be fit abodes in which the priests and religious may reside; the hospital must lend itself well to the care of the sick, and so on for the rest of the category of buildings.

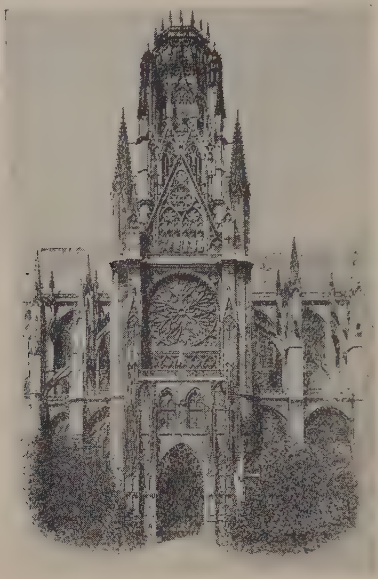


PLATE 30

The South Wing of the Transept

ABBEY CHURCH OF ST. OUEN, ROUEN, FRANCE

The Abbey Church of St. Ouen dates from 1318–1515, and the portion of the building shown in this illustration (with the exception of the top of the crossing tower (is fourteenth-century or Geometric work. The tower was topped out late in the fifteenth or early in the sixteenth century. The architecture shown in this picture is practically faultless. The great buttresses and flying buttresses command our interest, and give some idea as to how the powerful outward thrusts of stone vaulted ceilings were held in check. The church is dedicated to St. Ouen, who was Archbishop of Rouen in the seventh century.

These remarks will reveal the special aim which distinguishes architecture from the other arts. Its function is fundamental and primarily utilitarian, but, if it fulfills a utilitarian purpose only, it forfeits all claim to be considered among the arts. This is especially true in the case of churches, which, if they do not furnish a proper setting for liturgical ceremonies and provide an atmosphere of devotion, lack one of the chief characteristics of ecclesiastical architecture, and have the appearance of mere auditoriums or places for conventicles. Hence the necessity of entrusting such edifices only to good ecclesiastical specialists.

RELATIONS BETWEEN OWNER, ARCHITECT AND CONTRACTOR

Some practical advice on how these relations should be arranged may be appreciated by many readers. Heretofore, there has been prevalent an unfortunate custom of selecting the architect by the competitive method, *i.e.,* by inviting from four or five to a dozen architects to furnish sketches without reimbursement, informing them at the same time that the best design is to be selected by the "building committee." If these committees understood architecture, there might be some defense for this custom. The only fair system in case a competition is desired is for the committee to seek the aid of an expert professional adviser to determine the design most deserving of the commission to erect the edifice. The wrong competitive system ought to be done away with finally, for it is both unfair and wasteful. An architect cannot afford to devote to the

PLATE 31

AN ANCIENT ABBEY BARN

This granary, or barn, belonged originally to one of the ancient English abbeys. It is good fourteenth- or fifteenth-century Gothic work, and the building is in an excellent state of preservation.

drafting of free sketches all the care and time which the importance of the matter calls for.

If the competitive method is to be continued, at least let the Competition Code of the American Institute of Architects be adopted. This provides for the following: (1) a written program prepared by a professional adviser (that is, an architectural expert), and distributed to all competitors, so that all designs will be worked up from the same basis; (2) a small reimbursement to be paid to each competitor for the time consumed in making his design; (3) a professional adviser of recognized standing to be selected by the committee to decide which design is most satisfactory according to the written program, and which will result in the best edifice architecturally. Generally, the same professional adviser drafts the program and selects the design, and a certain

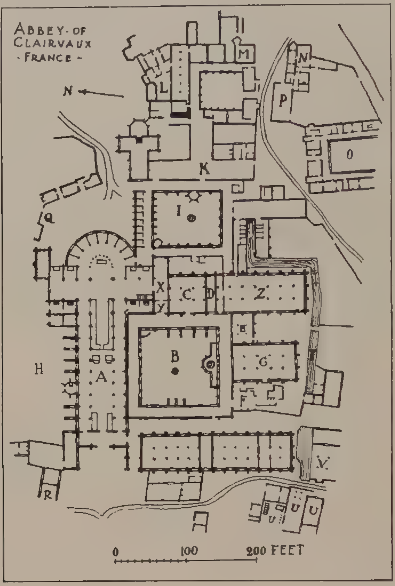
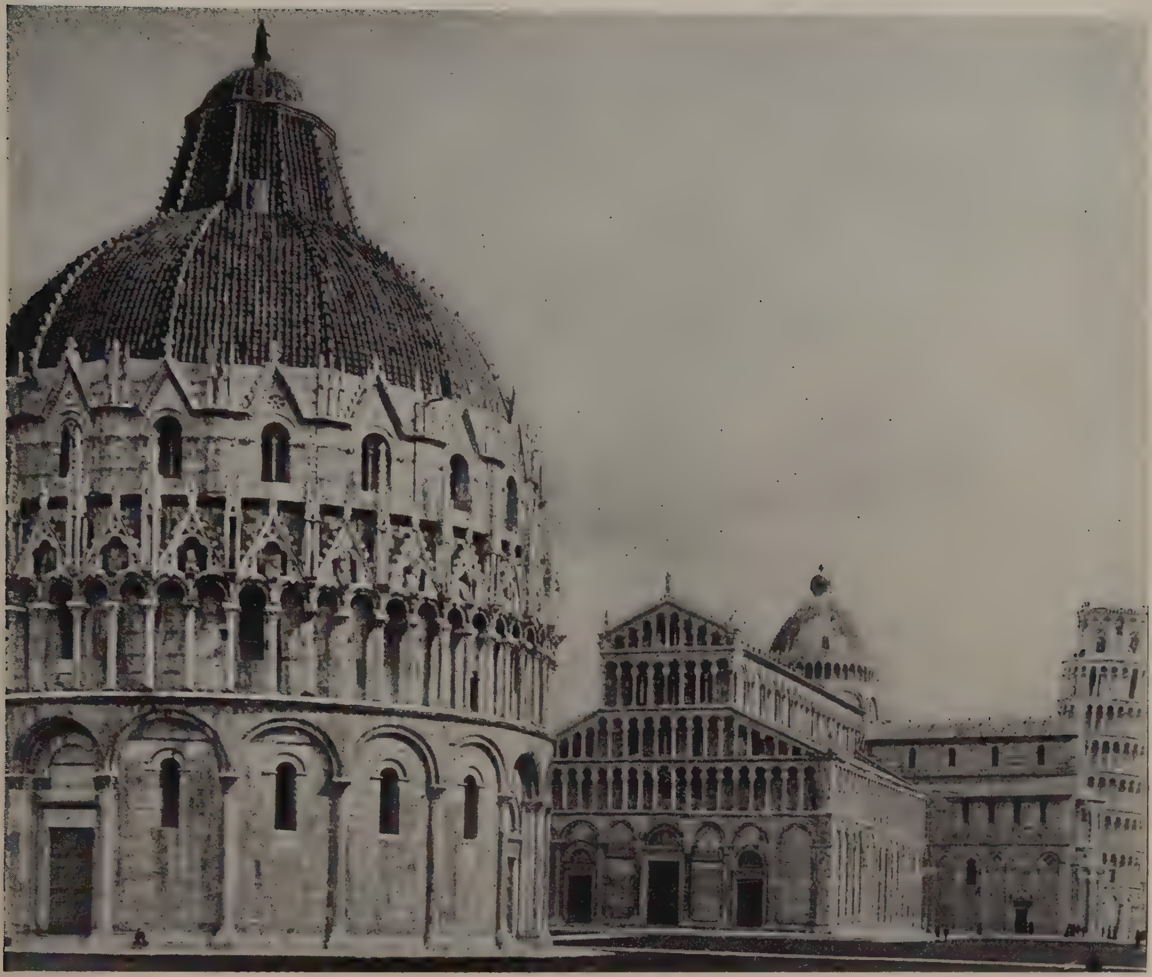


PLATE 32

KEY FOR DETAIL PLAN OF THE ABBEY OF CLAIRVAUX, FRANCE, FOUNDED BY ST. BERNARD

A, Church; *B*, Grand Cloister; *C*, Chancery; *D*, Parlor; *E*, Warming Room; *F*, Kitchen; *G*, Refectory; *H*, Cemetery; *I*, Small Cloister; *K*, Infirmary and Dependencies; *L*, Noviate; *M*, Lodging for strangers; *N*, Domicile of the Abbot; *O*, Cloister for the old and infirm; *P*, Abbot's Room; *Q*, Cell and Oratory of St. Bernard; *R*, Stables; *S*, Barn and Cellars; *T*, Stream; *U*, Mill; *V*, Tannery; *X*, Sacristy; *Y*, Small Library; *Z*, Dormitory above Ground Floor.



(Underwood & Underwood, N. Y.) PLATE 33

South-West View

CATHEDRAL OF PISA, ITALY

This cathedral, together with its baptistery, its campanile, and its cemetery (or Campo Santo), forms one of the grandest and most noteworthy groups of buildings in the world. As a rule, in medieval groups the various buildings are different in period and style, but in the Pisa group we have an exception, for all four buildings have the same general character, the materials are alike, and harmony prevails. The campanile or bell tower—the famous Leaning Tower of Pisa, built apart as in the case of the Cathedral of Florence, the Church of San Zeno, Verona (Plate 93), and others—is shown in the illustration at the right; the baptistery is on the left. The cathedral dates from 1064–1118, and its style is Romanesque. Planned like a Latin Cross, it carries at the intersection of the nave and transept a dome, at the base of which is a fine open-work gallery. The material is white marble, to which the gentle hand of time has lent a soft, rich creamy tint. Bands of red marble are inserted horizontally at intervals. A marble platform raised on several steps surrounds the entire edifice, and, in general, the proportions of the building are splendidly conceived. The interesting flat pilasters of the lateral façade carry arches in the first story, while the second story is trabeated. The clerestory is treated with arcades and engaged columns, and every other bay is pierced with a round-headed window.

stipend must be paid to him for his services. But, as stated in the first chapter, the most satisfactory results are usually obtained by selecting an architect according to the quality of the work he has produced, and engaging him to draft the plan to meet the local requirements. The expensive and wasteful competitive method is thus avoided—for all expenses are ultimately borne by the congregation.

PLATE 34

South-West View

THE SAINTE CHAPELLE, PARIS

The Sainte Chapelle of St. Louis of France is together with Amiens Cathedral (Plate 1) considered to embody in its general design the perfection of Gothic art. All Gothic art that went before was, in the main, the striving towards perfection, while all Gothic art that succeeded contained to a greater or less degree the seeds of decline.

When one is contemplating the erection of a building (be it church, chapel, school, rectory, convent, monastery, or asylum), the first problem that should be solved is not the selection of a site, as is generally supposed, but the employment of an architect. The general custom is to buy a piece of property, and later decide on the architect. However, this is a "hind foremost" procedure, for the architect is in a position to advise prospective owners whether or not properties are suitable for building purposes, in location, condition, size and contour, etc. Naturally, there are cases where it is not possible or even advisable to select the architect first, but, whenever practicable and when a project of great importance is under consideration, this procedure should be followed. The architect would make no additional charge for advice in matters of this sort, when assured of the commission to draw the plans for the proposed structure.

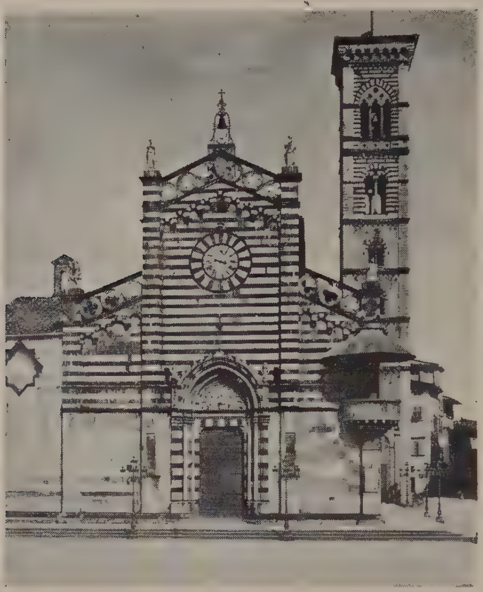


PLATE 35

The West Front and Campanile

CATHEDRAL OF PRATO, ITALY

The original edifice which served as the Cathedral of Prato was built before the tenth century, and the present almost perfect architectural achievement was erected from the plans of Giovanni Pisano in the thirteenth and fourteenth centuries. To a great extent, the church is similar in conception to the Cathedral of Pisa (Plate 27), but it is of later date than the latter, and consequently has pointed arches like the vast majority of buildings built in the Gothic style. Alternating dark and light marble bands are used, but the deeply recessed arcades so prevalent in Italian Romanesque work are absent. However, the Romanesque arched corbel tables are retained. On the South-West corner is a pulpit (dating from 1434–1438), which has sculptured reliefs of considerable merit by Donatello and Michelozzo. A stylobate, as in Pisa, is formed around the building at the base. The doorway is Gothic, as are likewise the raking parapets containing quatrefoils and also the windows of the tower. Greater power and strength are suggested in the building by having the lower parts of the front and the shaft of the tower in monotoned marble. The clock in the façade is an interpolation, and its place should be taken by a rose window.

Assuming that the architect has been chosen, the next question to be discussed is the contract between the architect and owner. To safeguard both the owner and the architect against misunderstandings, a formal contract should be drawn up and signed by them. The Ameri-

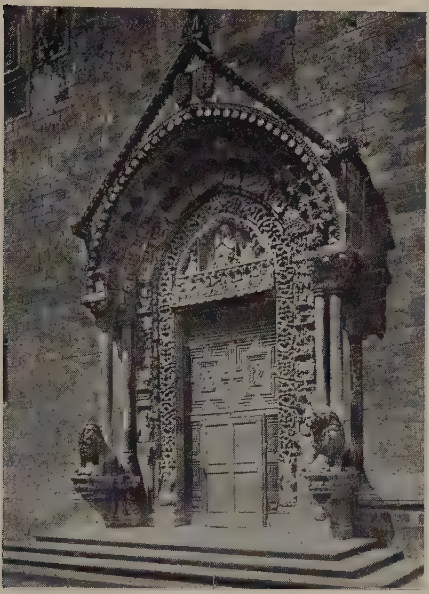


PLATE 36

The Doorway

CATHEDRAL OF ALTAMURA,
SOUTHERN ITALY

The Cathedral of Altamura shows in this fourteenth-century work an excellent example of a canopied doorway carried on columns, which in turn rest on the backs of lions. The classification of this work is Romanesque, notwithstanding the fact that the arches are pointed ones. Four orders recessed surround the door opening, while in the tympanum is a beautiful sculpture depicting the Blessed Virgin and Child, accompanied by two adoring Angels. The Last Supper is shown on the lintel under Our Lady. Two escutcheons are found in the gable, while on its apex is a figure of Christ seated. The proportions could not be better, the lions are masterpieces of carving, and the ornamental sculpture is refined while at the same time executed with great vigor.

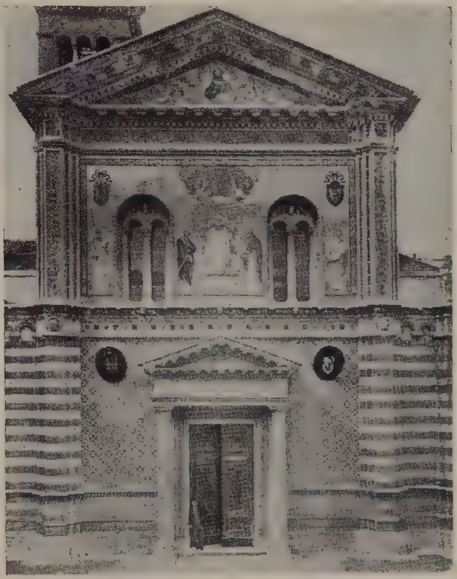


PLATE 37

The Façade

S. PUDENZIANA'S CHURCH,
ROME, ITALY

S. Pudenziana's is according to tradition the oldest church in Rome. On this spot stood the house of St. Pudens, who with his daughters, Praxedes and Pudentiana, showed hospitality to St. Peter. The church was restored in 348–398 and again at other times, particularly in 1588. The campanile shown at the left is a good example of ninth-century work, and is built on the same general order as the tower of S. Maria in Cosmedin, Rome (Plate 88). The façade of the church contains modern mosaics: in the middle is St. Peter with SS. Pudens and Pudentiana, at the pier on the right will be seen Pope Gregory VII, and at the pier on the left Pope Pius I. The tympanum of the gable contains a mosaic of Christ and adoring Angels. The striped work at the aisle walls recalls the Cathedral of Pisa (Plate 27) and other works which influenced it. This façade demonstrates that color in the hands of able artists can be successfully allied to exterior architecture, as was done also on the Orvieto and Siena cathedrals.

can Institute of Architects' contract form is commonly used, but, if for any reason that form is considered undesirable, it can serve as a basis for the drafting of one suitable to both parties. A binding contract with the architect can also be made by a simple letter, wherein the architect undertakes to render certain services for a stipulated stipend. If accepted in writing by the owners, this letter forms a contract. In counseling a written contract rather than a verbal one, I may recall that building operations usually cover at least a year's time (and frequently several years), and human beings are prone to forget speedily many de-

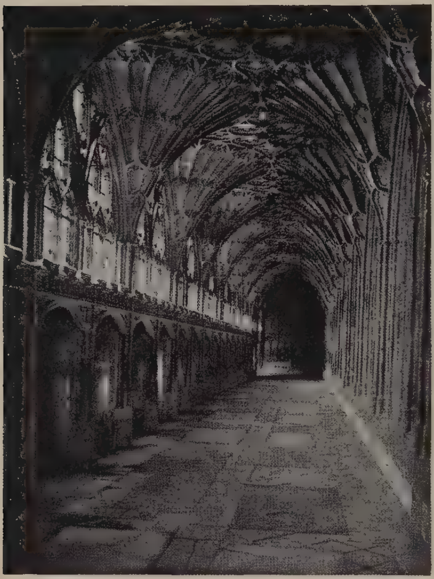


PLATE 38

The Cloister Walk and the Carrels of the Illuminators

GLOUCESTER CATHEDRAL, ENGLAND

In the illustration are shown the carrels where the monks performed their writing. These can be seen at the left of the picture under the windows. The vaulting is considered the finest extant example of the Early Perpendicular fan vaulting of the fifteenth century. All the work shown in the picture is of stone save the stained glass of the windows and the wooden door with its hinges. The floor is most interesting, being constructed with oddly shaped blocks. The width of the cloister walk between the piers is 12 feet 6 inches.

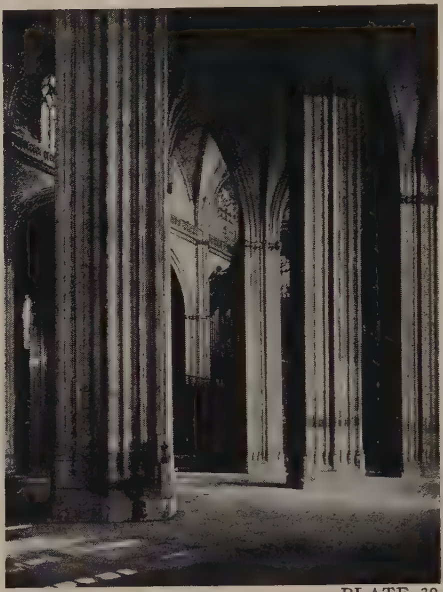


PLATE 39

(Courtesy "The American Architect.")

The Interior

CATHEDRAL OF SEVILLE, SPAIN

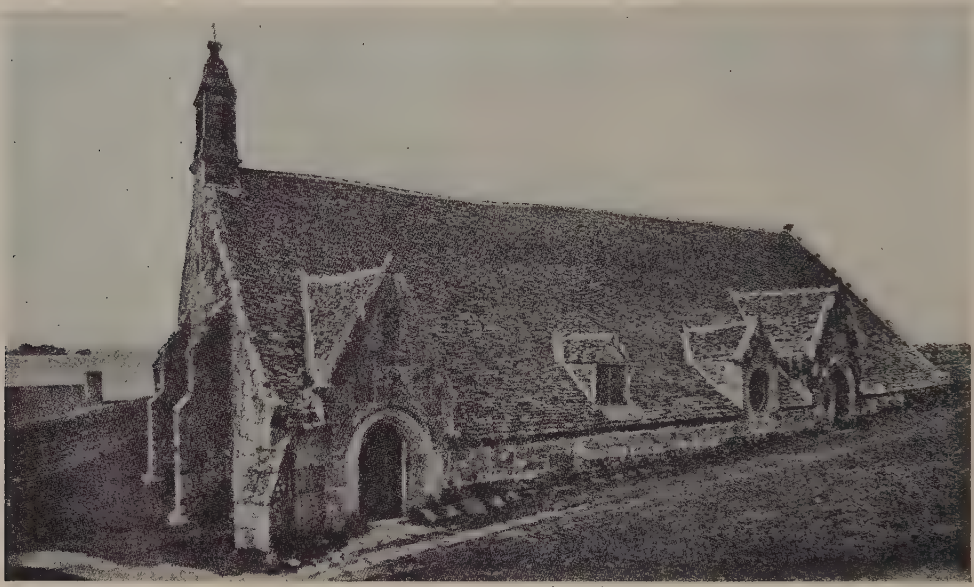
The interior of this cathedral (Plate 6) is renowned for its impressiveness. Its plan across the building consists of a nave, four aisles, and two rows of side chapels; its width (250 feet) is about five times as great as the width of Westminster Abbey in London. Thirty-two noble, clustered piers of great height support the vaults, which rise to 130 feet in the center. The choir is in the nave (West of the crossing as in most Spanish churches), and rich choir stalls aid greatly in creating one of the grandest of all Christian churches.

tails agreed to by word of mouth only. A written agreement is the best corrective for a faulty memory. The contract with the architect should state the fee to be paid by the owner to the architect and the exact method of payment. The fee should be a percentage equal to that regularly paid for the highest class of public building work. The percentage is based upon the cost of the building or alterations, and the architect's services include sketches, working plans, specifications, details, drafting of contracts, issuing of certificates of payments to the contractors, and the supervision of the work. The usual practice is to pay one-fifth of the entire commission (based upon the approximate total cost) to the architect when his sketches are approved, and subsequent payments should be made to him periodically as the work on the plans progresses until a total payment of three-fifths of the entire commission is reached when the drawings and specifications are ready for bids. After the construction begins, the remaining two-fifths of the commission should be paid to the architect in instalments, according

(Edward J. Weber, Architect.) PLATE 40

CORPUS CHRISTI CHURCH, WARWOOD, W. VA.

to the way the certificates of payments to the contractors are issued. The architect should have charge of the superintending of the building up to the time of its completion. Payments should in justice be made to the architect while the plans are being prepared in his office, since his draughtsmen's salaries, rent, traveling expenses, and his own living expenses go on all of the time, and the drafting of a set of general plans is the most expensive part of the architect's work. These general plans are also the most important part of the architect's activities, for on them really depends whether the building will be good, indifferent or bad. A precise survey of the property on which the building is to be built should be provided for the architect. Without this survey the drafting of a correct set of plans is impossible. The survey should be made by a competent engineer, and should show the boundary lines of the property, easements, rights and restrictions, the contours of the land, the elevations,



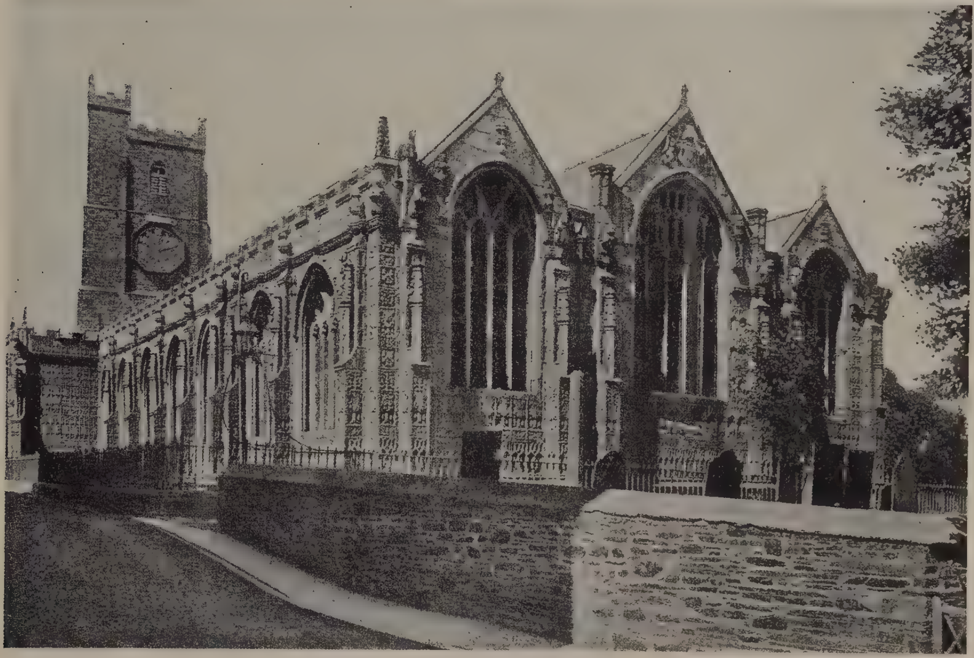
South-West View PLATE 41

CHAPEL PORT BLANC, BRITTANY, FRANCE

In this charming chapel can be detected no Renaissance architectural influences, even though it was erected not earlier than the sixteenth century. Fortunately for the churches of Brittany, the decline of taste in architecture, brought about by the revival of ancient Roman and Greek learning, did not affect them to any appreciable extent. From the twelfth century to the eighteenth, the style of Breton church work changed but little.

the lines of the streets and pavements, the sewer, water, gas, electric and telephone lines, and the location of trees, etc.

The full regulation commission should be paid to the Catholic architect on all classes of work. If he is an ecclesiastical specialist of the highest type, is conscientious, and devotes the proper time and study to the plans, he will derive from his fees nothing more than a fair living for himself and his family. If he has devoted his life to ecclesiastical art, he should not therefore be denied the equivalent received by the commercial practitioner, who devotes his time to public school, bank, hotel and office building work. For the reason mentioned in the first



South-East View PLATE 42

LAUNCESTON PARISH CHURCH, CORNWALL, ENGLAND

Launceston Church exemplifies an English parish church of three nearly equal naves; it is unbroken on the lateral façade save by the deeply projected porch toward the front. Broad windows, filled with tracery of the Late Perpendicular type, and sturdy buttresses form a procession down the side. Battlemented parapets appear on both the Southern nave and the tower, the latter being fine examples of what can be done with only simple means at one's disposal. The random stonework of the churchyard wall and the interesting all-over pattern cut on the coursed stone church walls are also noteworthy. Although to the casual observer the gables of the three naves seem similar in all respects, yet the central one is somewhat higher than the two at the sides.

chapter, the Catholic architect must depend on his Catholic work, for he has no secular work to fall back upon. The regulation charge for architectural services for a building—about one-seventeenth of the cost of the building—is not high for the services of a high-class specialist, even if these services are measured only according to the standard of dollars and cents. By drafting his plans wisely, eliminating all needless expenditures, and seeing that his client gets full value for every dollar spent, a competent architect will prove himself an economy, and not an expense. And, while his fee adds more to the material value of the building than any other equal expenditure, his talent will also give to the structure a permanent distinction and a devotional character that are of importance and value, though they cannot be appraised in terms of money.

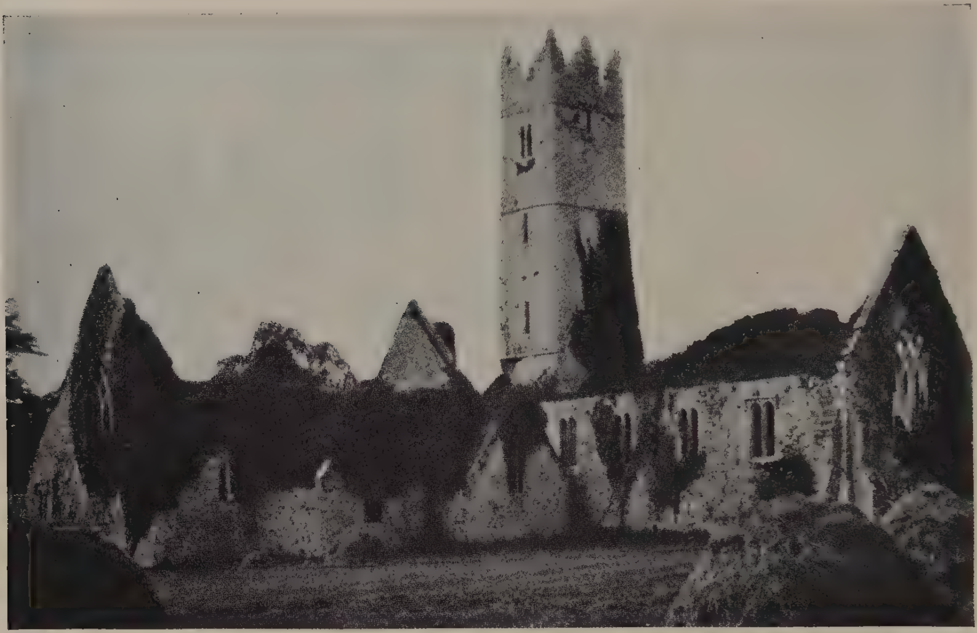
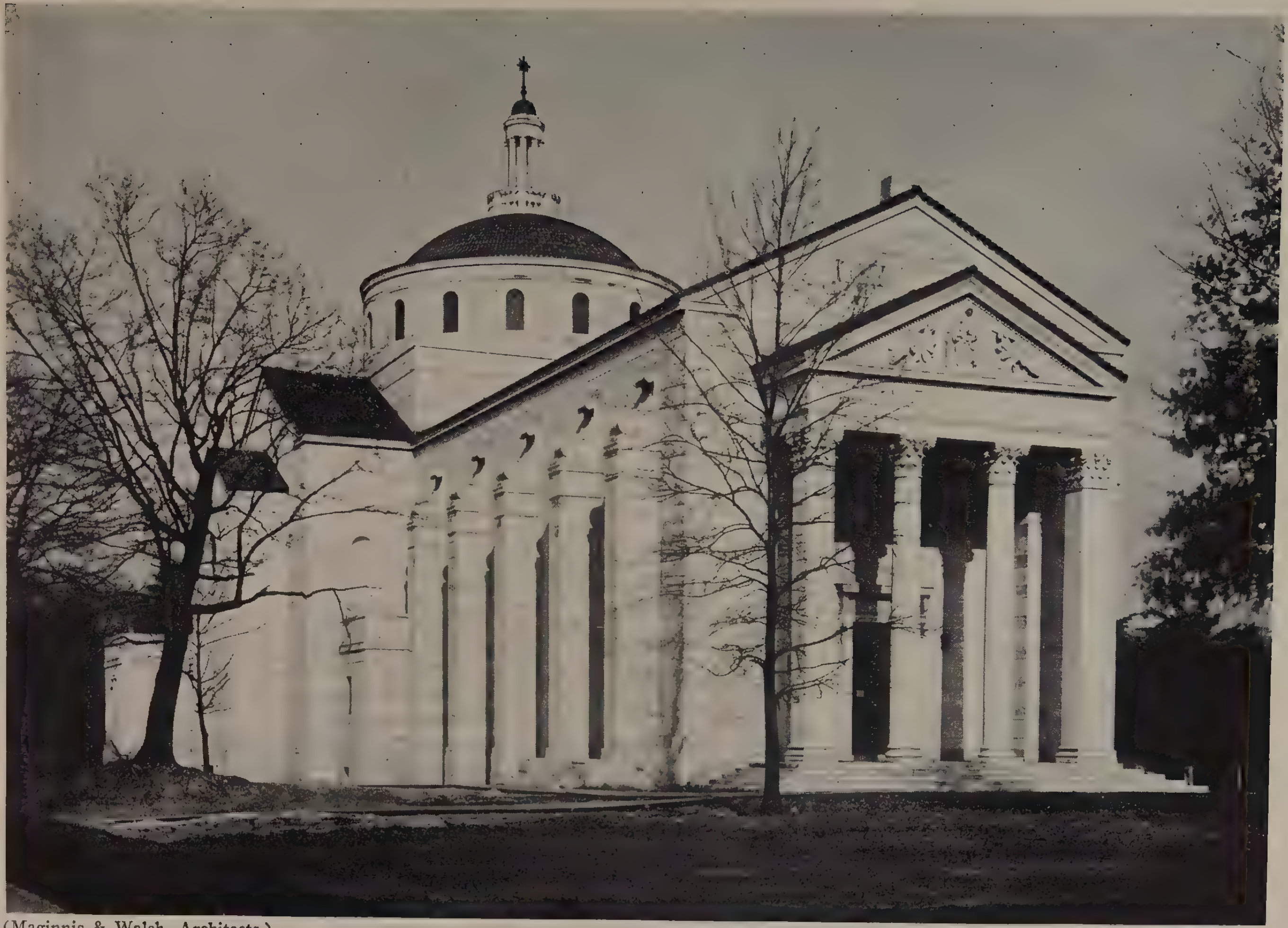


PLATE 43

RUINS OF FRANCISCAN ABBEY, ADARE, IRELAND

In this ruin may be discerned, beginning at the right hand of the picture, the nave without the clerestory, the tower over the crossing, and the conventual buildings. The style of the architecture is Early Gothic; in fact, a great many Early English windows are like the large window showing at the end of this nave. Note the absence of buttresses, except at the front corners. The tower, too, is without buttresses, and it has characteristic Irish battlements. The fact that the tops of all side and gable walls and the entire tower of a building which has been long roofless are remarkably well preserved, shows that thin walls, poor materials, and poor workmanship had no part in its first construction.

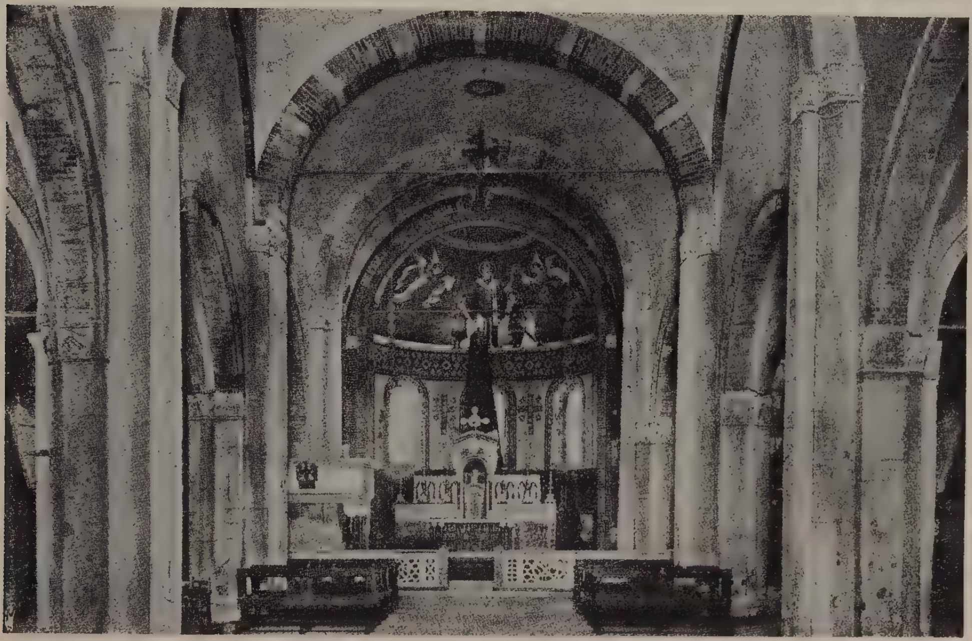


(Maginnis & Walsh, Architects.)

PLATE 44

TRINITY COLLEGE CHAPEL, WASHINGTON, D.C.

After the general contractor has been selected and before work is begun, a contract between the owner and the contractor should be drawn up and signed by both parties. Generally the "uniform contract" is employed, but that of the American Institute of Architects also serves the purpose. It is well to have the contractor put under bond furnished by a reliable surety company, especially if the amount involved is considerable; if, however, the amount is small, this precaution can be dispensed with, especially if the contractor is a responsible party. The cost of the bond is 1½ per cent of the amount of the contract. The bond is of service principally in securing the owner in the event of the financial collapse of the contractor. Should the contractor fail, the bonding company then sees that the work is completed without loss to the owner.

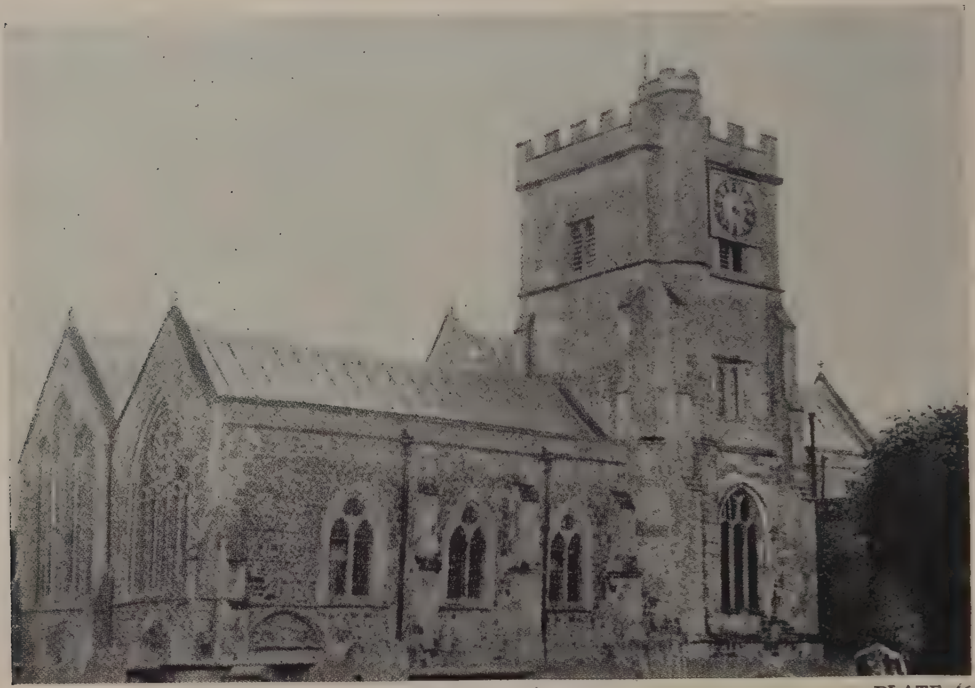


The Interior, Looking towards Sanctuary PLATE 45

CHURCH OF S. BABILA, MILAN, ITALY

Here is shown a fine, well-proportioned interior in the Lombard type of Romanesque architecture, dating from about the twelfth century. It is similar in feeling to the Church of S. Ambrose of the same city, but it lacks a triforium. Rich stone capitals are found on the pilasters and the engaged columns. The arches of brick have some voussoirs of stone.

The methods of financing a building proposition are many and varied, and the owners can best judge this matter for themselves. In many recent drives for funds, professional men who specialize in managing campaigns of this sort were employed, and in some cases made a success where otherwise there might have been failure. If a church is in prospect, a system which may help tremendously to augment the funds is that of arranging to have practically everything within reason visible to the eye donated in the shape of memorials by the faithful, as was done in the new Catholic Cathedral of Westminster, London.



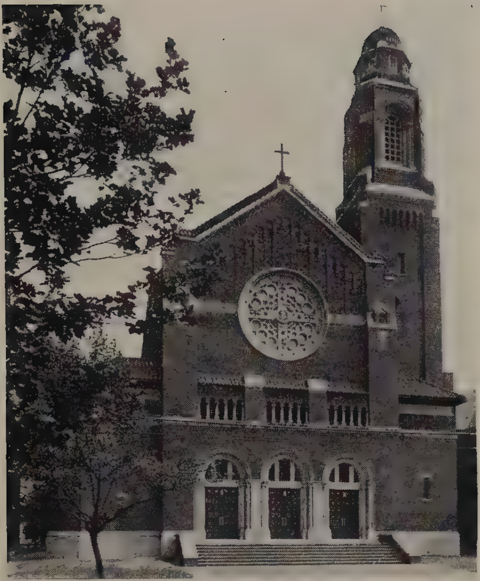
South-East View PLATE 46

CHURCH AT FORDINGBRIDGE, HAMPSHIRE, ENGLAND

Most of the work shown in this picture is of the Early English period. The tower and the portion of the building directly East of it seem to have made up the original church, while the remainder represents in all probability later additions. The large East window is Decorated or fourteenth-century work. The triple lancet window of the choir is Early English, while the window in the lower part of the tower and the battlement atop the tower are of the Perpendicular period. The roofs are lead, and high parapets crown the walls.

Relations With the Architect

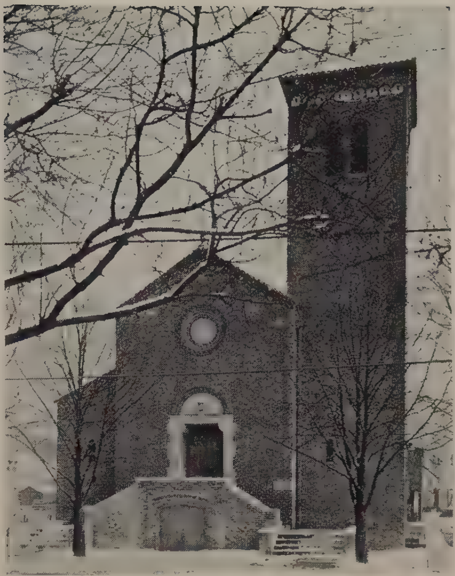
Having chosen an architect, you should give him your full confidence and coöperation, if you wish to succeed in your determination to



(A. F. Link and Associates, Architects.)

The West Front

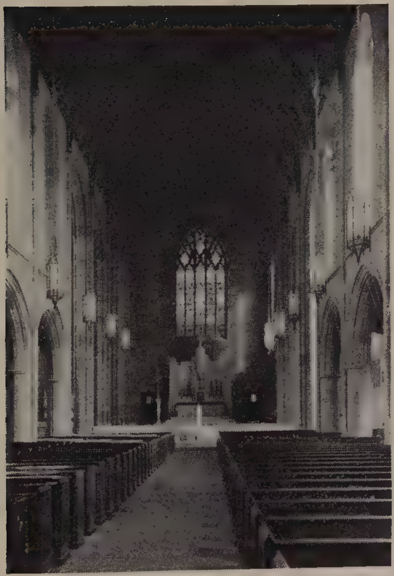
ST. ANSELM'S CHURCH, SWISSVALE, PA.



(Edward J. Weber, Architect.)

The West Front

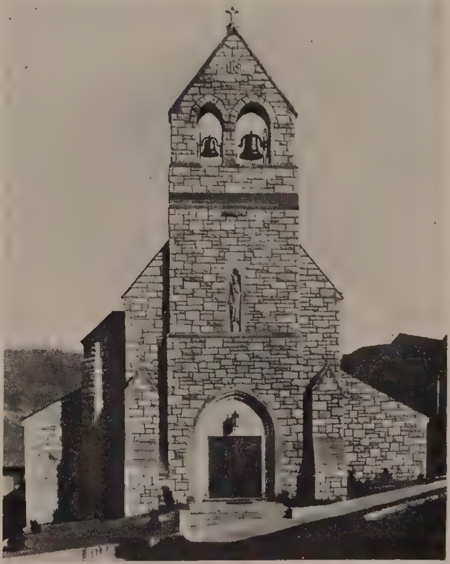
ST. JOHN THE EVANGELIST'S CHURCH, WELLSBURG, W. VA.



(Frank R. Watson, Architect; Geo. E. Edkins and Wm. Heyl Thompson, Associates.)

The Interior

ST. COLMAN'S CHURCH, ARDMORE, PA.



(Edward J. Weber, Architect.) PLATE 47

The West Front

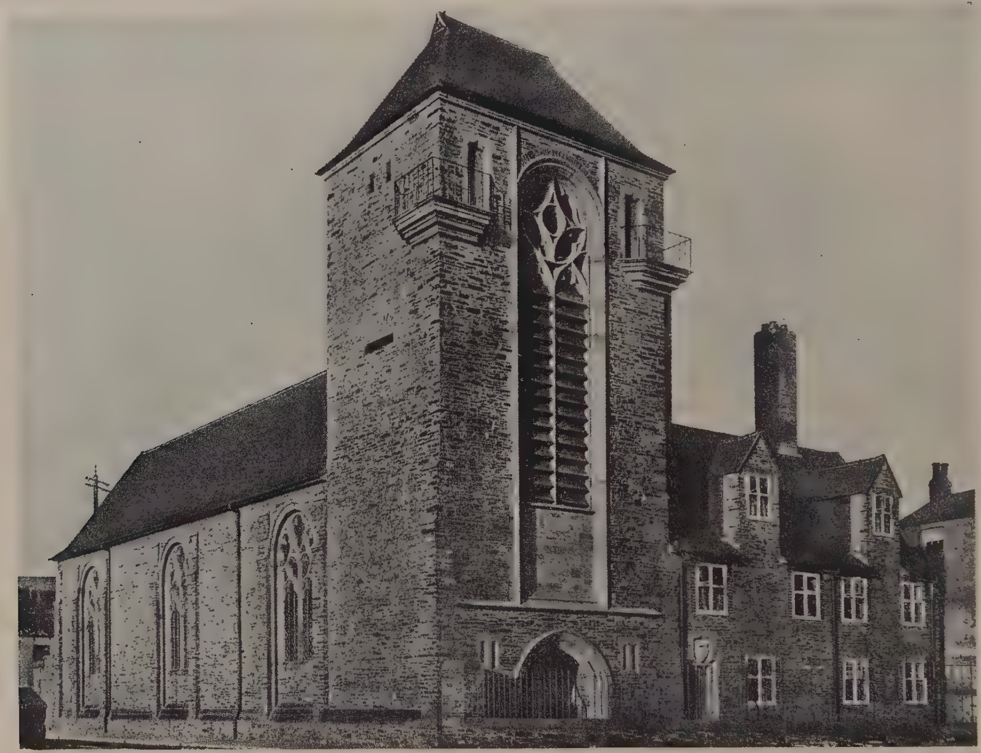
SACRED HEART CHURCH, BLUEFIELD, W. VA.

secure the best possible building. His views on matters of art and design should be accepted and relied upon implicitly, for his advice is based on long study and experience. His choice of materials for the proposed building should receive your approval, as well as his designs for the altars, church furniture, and so on. He should have a free hand in choosing the artists who are to aid him in producing good architecture, for again he is better fitted by his experience to select collaborators who can execute his ideas satisfactorily. These collaborators are the altar builders, the stained glass craftsmen, the decorators, the sculptors, mosaic and metal workers, and so on. In addition, the architect should have charge of the landscape work that surrounds the buildings. The opinion of laymen may well be considered in some matters pertaining to buildings, for example, in the matter of mechanical equipment, the heating, plumbing, etc. But, in regard to æsthetic matters, the opinion of the architect should never be ignored, provided the cost of the building is not increased beyond the appointed limits. If you have chosen a worthy architect, he is entitled to your confidence within these limits

PLATE 48

AN ENGLISH COUNTRY CHURCH

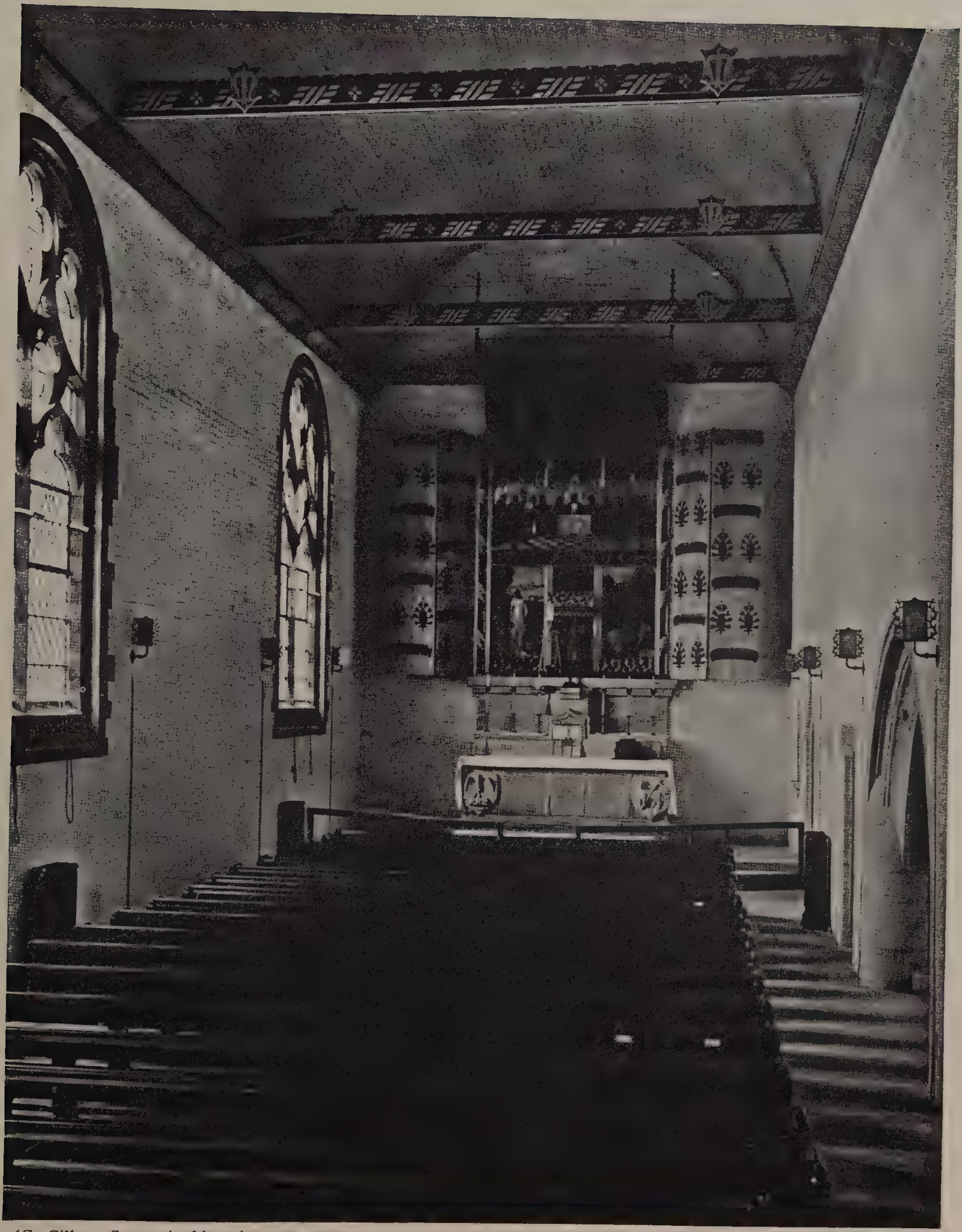
—especially in the case of a church wherein everything should be selected or designed by the architect if artistic harmony is to be preserved in the edifice. In the case of schools, hospitals, convents, etc., there are obviously many things that may be left to the choice of the owners—for example, school desks, hospital equipment, etc., where for various reasons utility must be given first consideration.



(G. Gilbert Scott, Architect.) PLATE 49

CHURCH AND RECTORY AT RAMSEY, ISLE OF MAN, ENGLAND (MODERN)

If a church is the problem in hand, the architect should be consulted and his advice should be followed with regard to the altars, stained glass windows, sanctuary fittings, organ case, baptismal font, stations of the cross, lighting fixtures, altar fittings, etc. These adjuncts frequently make or mar an edifice, and the owner needs expert advice in their selection. It is not sufficient to have a good architect for the shell of the structure only, on the pretext that things such as those above men-



(G. Gilbert Scott, Architect.) PLATE 50

The Interior Looking towards Altar

CHURCH AT RAMSEY, ISLE OF MAN, ENGLAND

tioned need not be placed in the architect's hands. It cannot be emphasized too often that when a church is being planned everything contained therein, from the West portal to the apse and from the dome cross to the pavement, should be in perfect harmony, and the creation of this harmony is the task of the architect. Let it be borne in mind that to build the bones of the structure well, and then finish in a pinchpenny manner, is highly inadvisable. We shall venture below our opinion as to the best policy to be followed if the full execution of the plans is temporarily impossible. The advice that the architect be commissioned to design or select the church furniture and so forth, is not given so that the architect may reap any extra remuneration. As a matter of fact, he usually suffers a pecuniary loss on the designs for furniture, altars and so on, because the drafting of these is a work so tedious, laborious and expensive that it is only the desire to see everything in the building harmonious that urges the architect to undertake it.

As time is necessary for the designing of worthy buildings, the architect should be given ample time within reason for the preparing of the plans. Next to talent and ability, time is the most important factor in this matter. Drawings have to be made and remade. The finished drawing that you see is only one of dozens that have been made and discarded. It is only the tyro who will attempt to dash off a set of plans, and the inevitable result of these hurried plans will be an unsatisfactory finished building. The good architect draws every imaginable scheme before he decides upon the best and most practical solution of the problem in hand. What does it matter if a month or two more is taken by the architect for the studying of the drawings, after you have dreamed of and waited for your building for ten or fifteen years? This small amount of extra time given to the architect may mean the difference between a mediocre building and a masterpiece. And, when it comes to the time for procuring plans, the owner should approach the problem with the following thought in mind: "A little knowledge of art is a dangerous thing, and I shall not require my architect to subordinate his seasoned judgment in important matters to suit my own fancy. Perhaps my personal taste has a leaning towards something different from that which he will draft. Having chosen him as an outstanding man in his profession, I shall second and not thwart his aims. For I am not building for myself, but for my congregation and for future generations. Something is not necessarily right simply because I like it. It is, therefore, preferable for me to build that which is correct, that which is designed by an ecclesiastical expert, that which will stand the test of time. I will place implicit trust in my architect, whose reputation built on solid accomplishments assures me of the successful conclusion that I desire." Facing the erection of a building in this frame of mind and having chosen a Catholic ecclesiastical architect of the highest type, the owner may confidently expect an exceptionally fine and practical piece of architecture.

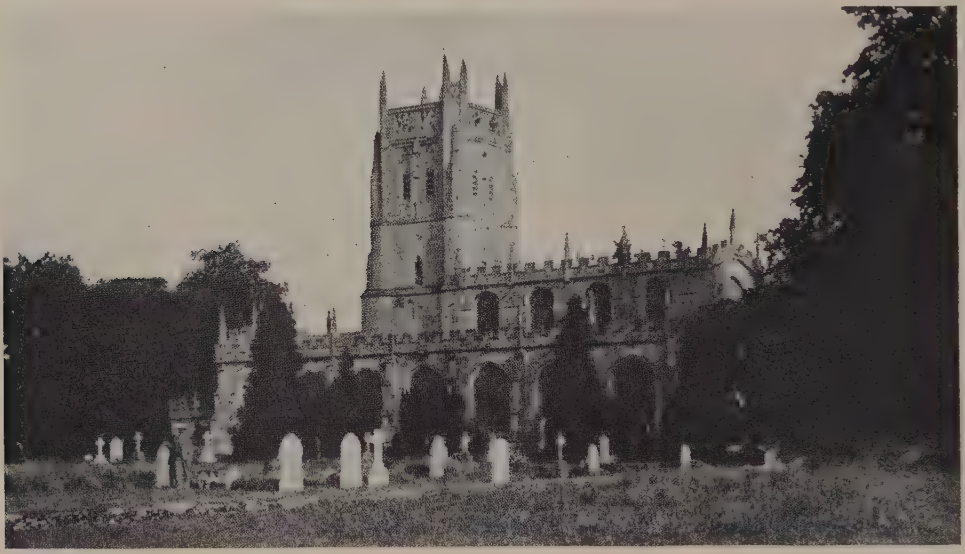


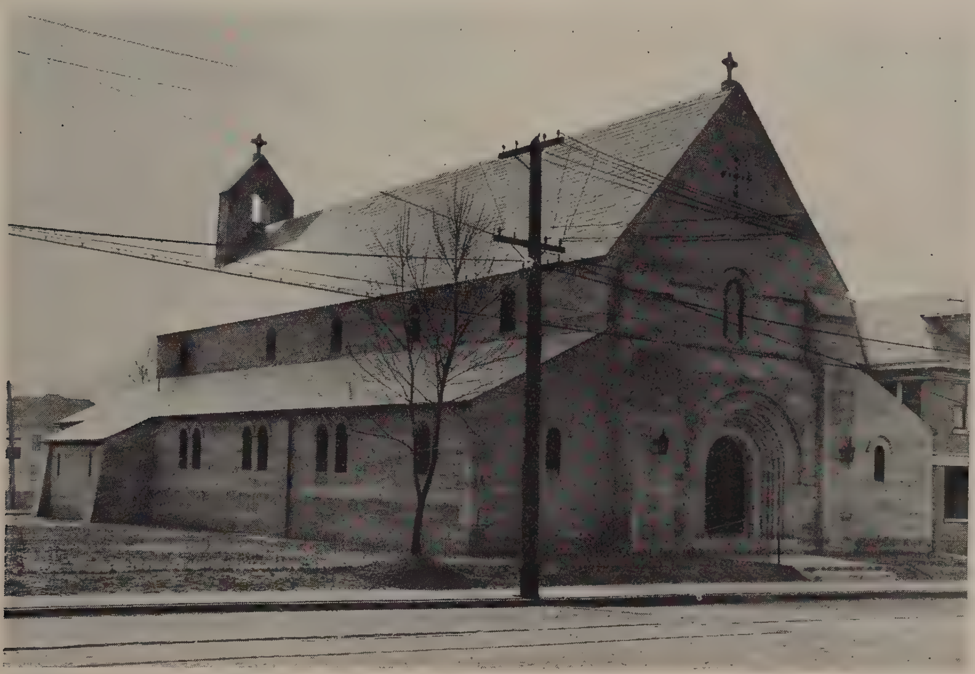
PLATE 51

EARLY ENGLISH GOTHIC VILLAGE CHURCH

A Gothic Perpendicular-styled English village church. Note the Perpendicular Gothic tower and the wide windows, as compared with the Early English Gothic style.

Criticism during construction by members of the congregation does more harm than good, because it is impossible to judge correctly before a structure is complete, and laymen cannot visualize the structure from the plans. It is the *ensemble* that counts, and much unpleasantness would be frequently avoided if the architect were given an opportunity of completing his work before criticism is offered. If the pastor will stand by the architect in the case of premature criticism, the critics will ultimately be silenced.

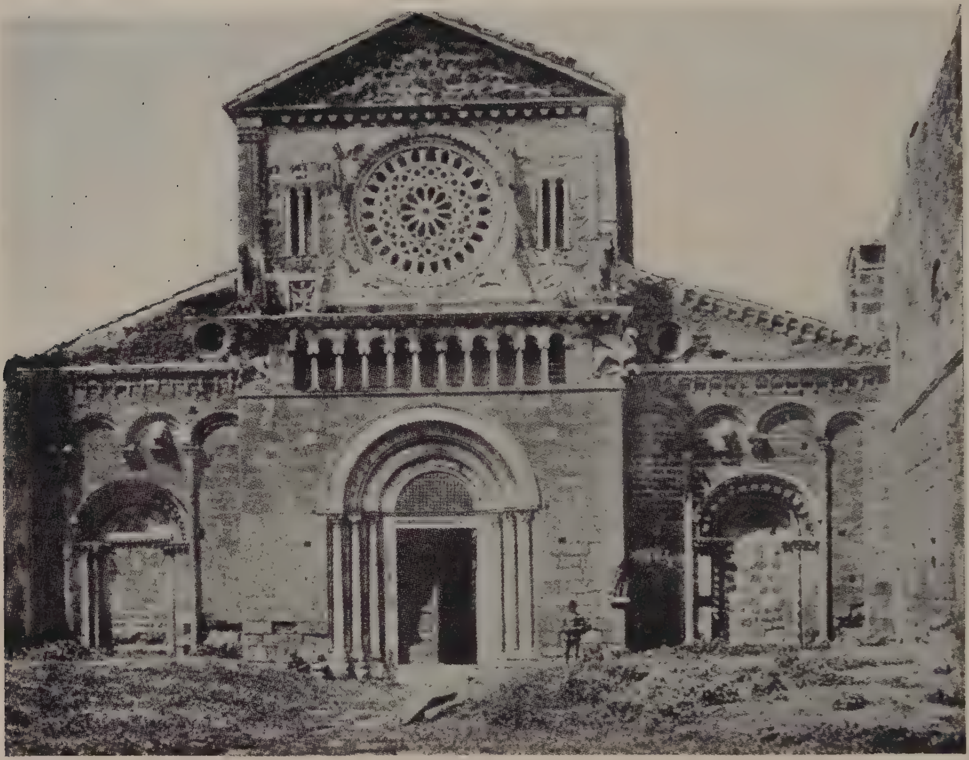
When the funds of the parish are insufficient to complete a proper building, it is advisable to build only a portion. It is far better to be assured of an eventually grand structure than to erect a parsimonious complete one, which is almost sure to become disliked after a few years by the members of the congregation and the public in general. In cases of this kind, a tower might be left for the future, the final decoration of the sanctuary could be postponed, a chapel could be omitted temporarily, and even the main façade and full extension of the nave might await a more opportune season. Temporary altars could be put up, and many other schemes might be devised to serve present needs without sacrificing your ideals of a truly worthy edifice. Build at least a part of the structure right, and rest assured that after a few years the congregation will feel an even greater enthusiasm to complete a monument so nobly begun.



(Edward J. Weber, Architect.) PLATE 52

ST. MARGARET MARY'S CHURCH, PARKERSBURG, W. VA.

Most of the noblest monuments of Christian Europe were the work not merely of generations but often of centuries. But the artistic ideal was never lost sight of, and rarely has the Christian Faith found such eloquent expression as in this tireless labor of generation after generation.



The Façade PLATE 53

CHURCH OF S. PIETRO, TOSCANELLA, ITALY

This church was erected in the ninth century, but it has since that time been altered to some extent. It is built in the Romanesque manner, but the central doorway and the mullioned windows flanking the rose window are, in all likelihood, thirteenth-century work. The rose window, including the symbols of the Four Evangelists in the corners surrounding it, are probably restorations and the work of the Cosmati (a family of mosaic workers, sculptors and architects that flourished between 1140 and 1303). The architect of the original edifice was named Rodpert. The building is of stone, and is a work of great vigor and excellence in design and proportion.

Each generation labored with patience, and was fully content as long as it contributed something towards the final completion of a church that would suggest the holiness, the sublimity, and the very eternity of the God to whom it was dedicated.

CONSTRUCTION

Good materials must be used, and inspection and supervision by the architect should always be arranged for. Economical building means using the best materials within reason; these will stand time's wear and tear, so that the upkeep will be kept down. By the best materials are not meant expensive and extravagant ones; the latter, while generally substantial although not necessarily so, can be dispensed with, and they will never improve a poorly designed building, although they may add to the beauty of a well-designed one. In other words, material will never make a building, but a building can often be the making of a material.

The best grade of workmanship should also be obtained so that maintenance charges will afterwards be low. Cheap, shoddy materials and workmanship are not economical, because higher upkeep costs will more than offset the immediate saving. A building constructed with poor workmanship and shoddy materials may have a solid look, but it will not be solid. Furthermore, when good workmen are asked to build with cheap materials, they have a tendency to shirk their work; but when good materials are used they will take an interest in their work, for, like good mechanics, they take pleasure in a good job. Buildings should not be built with the kind of workmanship and materials that will make the congregation distrust the construction. Permanent materials always create a sense of security and respect.

In general, when Catholic buildings are put out for bids, the lowest bidder, whether he is a responsible contractor or not, is awarded the contract. If it happens that the low bidder is an irresponsible contractor, he probably means to make up for his low bid by sacrificing the materials and construction. It is, therefore, better to pay a little higher price to a responsible man.

SUPERINTENDENCE

If owners do not secure the architect's supervision of the building, the following are general points to watch:

(1) Care should be taken to preserve all trees on the property, obviously excepting those displaced by the building. Trees should never be cut down without consulting the architect. As a rule, there are only too few trees around the parish buildings. Trees that are left should be protected by strong board boxes while the building is being erected.

(2) The excavation should be carried down to the correct depths as shown in the plans, and the soil that is to be used for after-grading should be put at convenient places for future handling.

(3) For reinforced concrete see that the rods are bent in the right way and placed in the correct position. In columns and walls be sure that the reinforcing wire mesh and rods are correctly installed.

(4) Steel work should be riveted, and as little bolt work as possible should be used. Care must be taken for all connections. The steel work should be plumbed after erection, and two good coats of paint should be used in different colors for the shop and field coats.

(5) The brick work should have the joints well filled with mortar.

(6) One should inspect the lumber to see that it is as specified, and also the grounds so that they be correctly placed for all wood finish.

(7) For wood flooring, it is important to see that it is as specified, and that it is also well laid.

(8) The lath for the plastering, whether wood or metal, should receive attentive examination.

(9) It should be seen that the mortar is well mixed and properly put in place. The number of coats of plaster and also the kind of plaster finish should be checked. The plaster walls should be true and plumb.

(10) The labels on the paint and varnish cans should be noted, as they arrive at the job. See that no gasoline or naphtha is used for adulterating, and that the correct number of coats of paint is given.

(11) Only the best hardware should be purchased, as it is poor economy indeed to try to save money on this item.

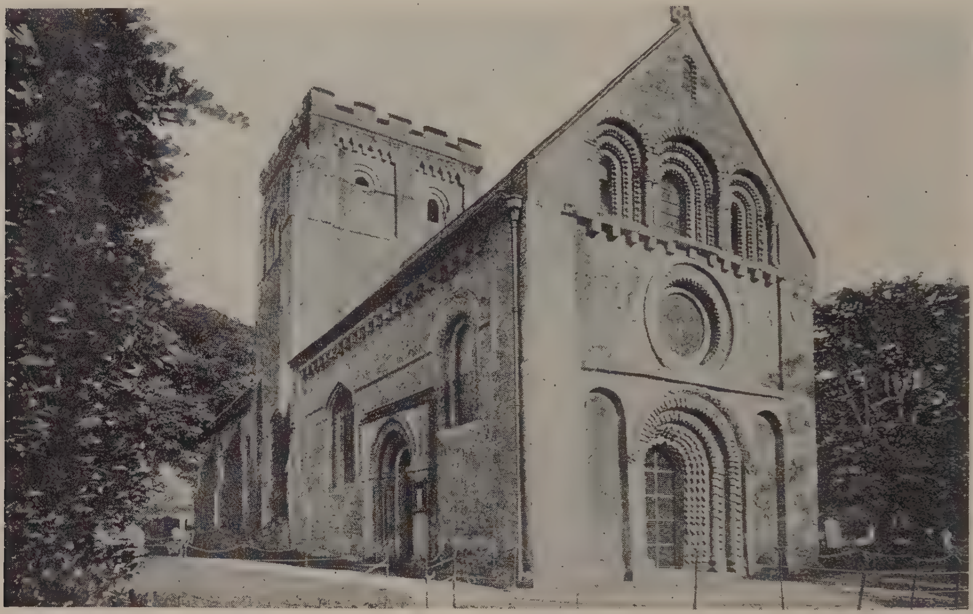
CHAPTER III

THE GROUPING OF PARISH BUILDINGS

THE choice of the site should receive careful consideration. Often the architect is called upon to design structures to be built on properties situated on steep hillsides or in deep gullies; and he is frequently asked to erect substantial buildings on filled ground. To build economically becomes more difficult in these cases. Deep foundations, retaining walls, extra filling, additional grading, made ground, underground springs, increased drainage, and other problems of a similar nature are usually encountered when sites like those above-noted are chosen. And some of these items involve additional maintenance charges after the buildings are brought to completion. There is always danger of encountering underground springs and a sliding condition on an overly steep hillside property. Such a site or one in a deep ravine, though often purchased at a low price, is nearly always an expensive one in the end. Then there are level sites with ground which is seemingly solid, but which upon investigation one discovers to be nothing more than so much filling. The owner faces additional charges for pile driving and foundations when buildings are erected on such ground. The expenditures for all such extraordinary items should not be charged to the cost of buildings built on such properties, but should in justice be added to the cost of the properties themselves.

Although they are apt to entail greater expenditures, it is not impossible to erect beautiful and effective ecclesiastical buildings on steep hillsides and eminences. From ancient times, it has indeed been customary to erect on such sites temples to God. In Psalm xlii. 3, King David sings: "They have conducted me, and brought me unto Thy holy hill and into Thy tabernacles." And in the Gospel of St. Matthew, xvii. 4, St. Peter says to our Lord when He was transfigured on the high mountain: "Lord, it is good for us to be here: if thou wilt, let us make here three tabernacles, one for thee, and one for Moses, and one for Elias."

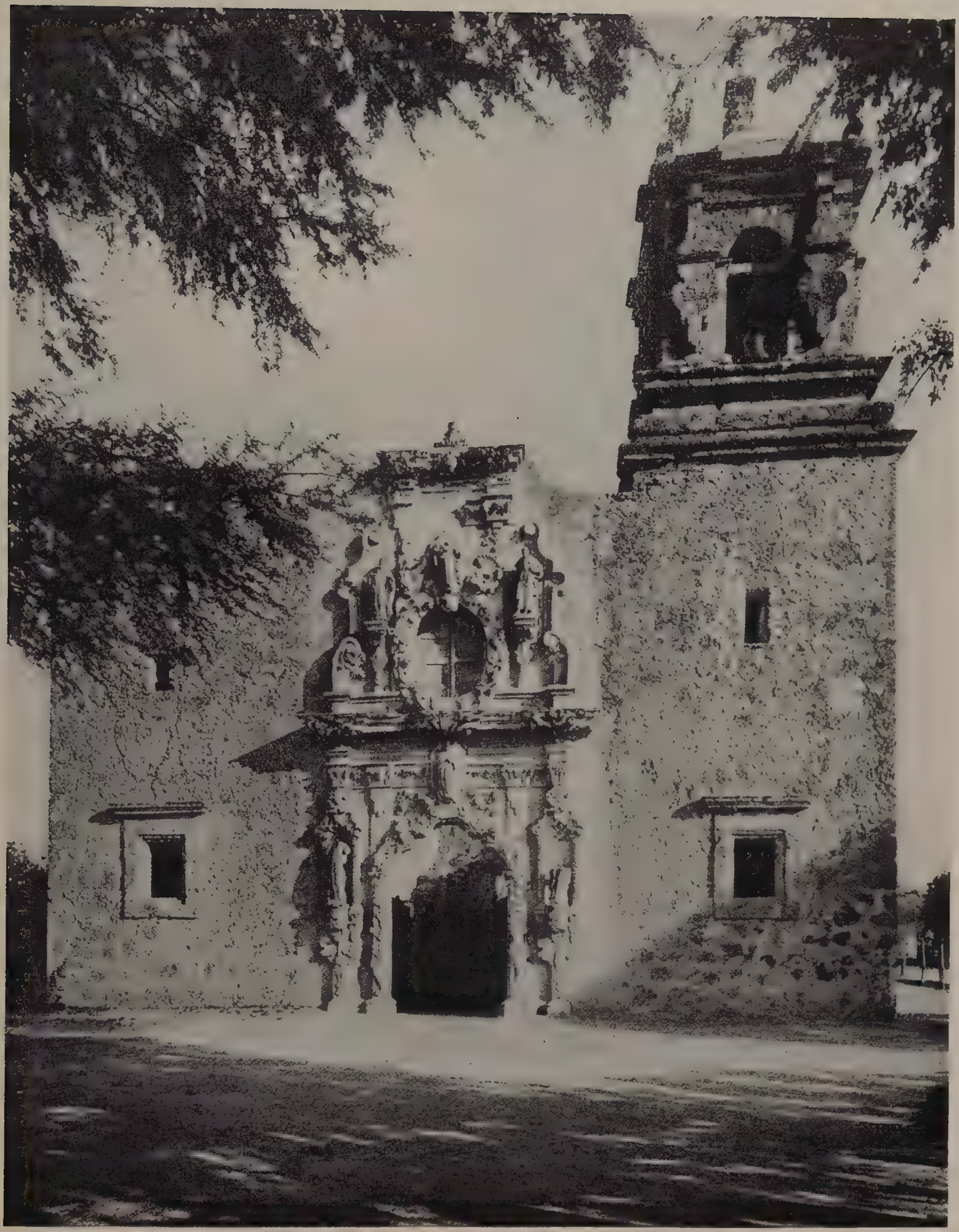
There are extant many fine examples as witnesses to the continuation of this ancient custom. Durham Cathedral in England, Mont St. Michel in Normandy, some of the fine churches and cathedrals in Spain, and Le Puy in the south of France, are all specimens of noble architecture erected above cliffs or on promontories. In fact, a church is very often intentionally placed on the top of a commanding position for no other reason than to give to it an impressive setting. Nor will men discontinue this practice entirely, although in this day of an in-



North-West View PLATE 54

IFFLEY CHURCH, ENGLAND

The architecture of the greater part of this church, located in the town of Iffley, near Oxford, is pure Norman, and corresponds to the Romanesque of other countries of the latter part of the eleventh or the first half of the twelfth century. It is only in the chancel that the tell-tale projecting buttresses reveal work of later date. Round arches prevail, and the zig-zag ornaments of the main portal, the rose, and the gable windows are characteristic of the Norman style. In place of buttresses, as in Gothic architecture, are to be found flat pilaster strips. Corbel tables, similar to those under the cornices, prevail in Romanesque buildings throughout Western Europe. The proportions of this fine building are perfection, and, as Ste. Chapelle, in Paris (Plate 34), is the perfect example of Gothic architecture, so Iffley Church can be crowned as the Parthenon of Norman work.



(Courtesy of "The American Architect.") PLATE 55

The West Front

CHURCH OF THE MISSION SAN JOSÉ DE AGUAYO, SAN ANTONIO, TEXAS

San José de Aguayo is an excellent example of the Spanish Colonial architecture of America. One marvels how the heroic Missionary Fathers could have accomplished such an architectural wonder in a country peopled only by nomadic savages. It must be borne in mind that this mission was founded in 1720. As the doorway is about 12 or 14 feet high, it may be seen that the church is not built on a pigmy scale. The beautiful portal and the window motif are done in a fine native stone of mellow white tint. The carving is exquisite and was undoubtedly done on the spot. A tradition persists that the King of Spain sent one of his foremost sculptors to America to aid in this work. Were the North tower completed, and the central motif finished off with a simple crowning gable of pleasing silhouette, this church would be an almost perfect specimen of Spanish Colonial Christian art.

finity of automobiles folk are not as enamored of climbing steps and inclined ways as of yore.

Let us now take up the question of selecting a piece of property for a typical parochial group. It is highly important to consider its character before entering into negotiations for its purchase. Low-lying, swampy or boggy lands are obviously unhealthful places for the building of schools or domiciles for the priests and nuns. From the standpoint of economical construction, a level or fairly level lot is the most desirable, and, while too hilly a property is not advisable for children's playgrounds, yet a moderate slope can be made satisfactory with the proper terracing. Evidently in hilly cities some steep sites must of necessity be chosen. An owner possessing a steep

(Edward J. Weber, Architect.) PLATE 56

The Nave, looking East

ST. JOHN THE EVANGELIST'S CHURCH, WELLSBURG, W. VA.

piece of land will require the services of a good, far-seeing planner for his architect. If the purchase of such a site is being considered, it is well before concluding the negotiations for purchase to have a survey made and placed in the hands of your architect with the request for a rough sketch. By this means you can ascertain before too late whether or not it is feasible to erect a group of parish buildings on the proposed site in a proper and economical manner. Land on which the church would inevitably be pushed up against a hillside or cliff, and properties on which the various parish buildings will be separated by a street or streets, should be avoided. Sites near railroad tracks are dangerous and noisy. When trains are passing, the classroom recitations must be temporarily interrupted; or, if a church is under consideration, the noises would be disastrous to the sermon, the singing, the congregational prayers, and so forth.

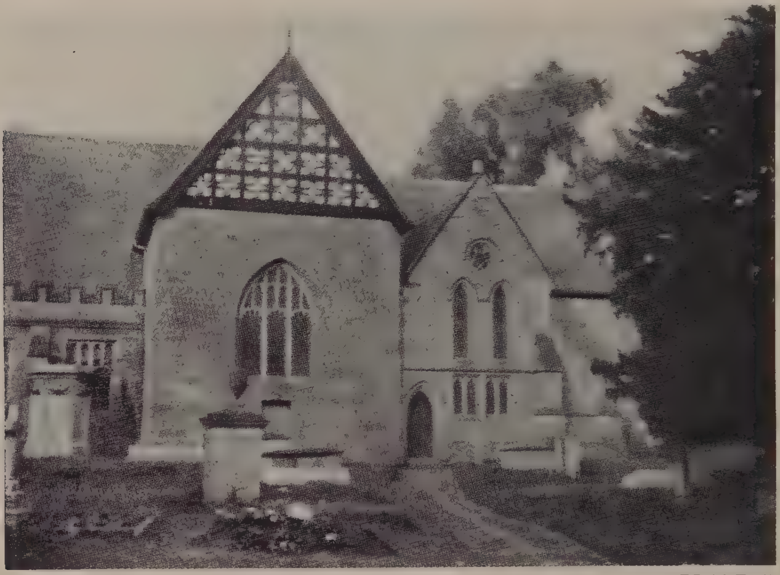


PLATE 57

VILLAGE CHURCH, ENGLAND

England may be said to be the land *par excellence* for ancient small churches. In this charming church are to be found several periods and styles of Gothic architecture. At the left of the picture can be detected the nave walls with their Perpendicular or fifteenth-century battlemented parapets, while at the right hand gable are to be noted the lancet windows of the Early English or thirteenth-century Gothic manner. The half-timber gable and wooden barge-boards add considerably to the interest of this tiny church of Merrie Englande.

A parish group generally includes the following buildings: a church, school, rectory, convent, and occasionally a lyceum or hall. A rectangular city lot 250 feet by 325 feet, or a triangular lot measuring about 500 feet on each side, will in all probability prove satisfactory as to dimensions. Lots are often very irregular in shape, but, if they contain about the same area as the above-noted properties and are otherwise found satisfactory, they can probably be utilized to advantage. Properties of the above-mentioned dimensions will not accommodate baseball or athletic fields in the school playgrounds, but these are not considered necessary except for high schools, and even then few of our Catholic high schools can afford them. However, the areas men-

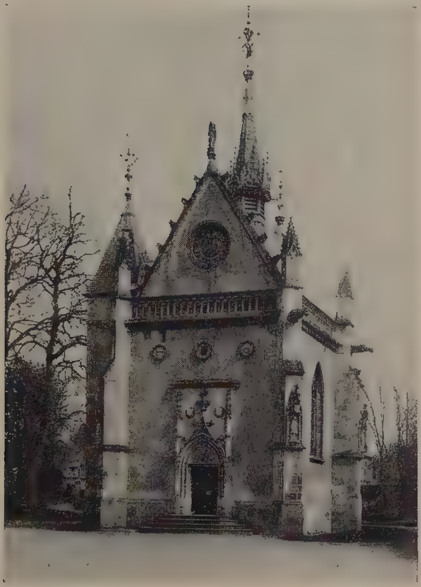


PLATE 58

CHAPEL OF THE CHÂTEAU DE MEILLANT, FRANCE

This chapel is an almost perfect example of its type, and, in general, manifests work of the fourteenth century. The sturdy buttresses at the four corners, with their niches, weatherings, gargoyles and pinnacles, the steep gable, the flèche, the stair turret, and the fine door, are all well-executed adjuncts that aid in giving to this little edifice its exquisite charm.

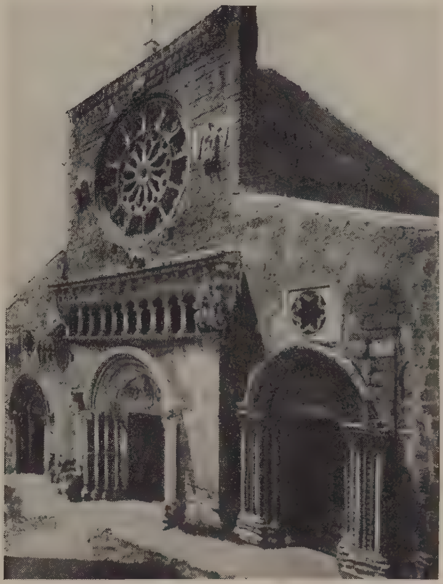


PLATE 59

The Façade

CHURCH OF S. MARIA MAGGIORE, TOSCANELLA, ITALY

This church dates from the ninth century, and is Romanesque in style. It has three round-arched doors, one in the nave and one in each aisle, a deeply recessed arcade or gallery over the central portal, and a great rose window over the gallery.

tioned are sufficiently large to allow ample playgrounds for both boys and girls, where they can engage in such games as volley-ball, indoor baseball, handball, basketball, etc. In addition, there will be ample space to supply a proper setting for the church, rectory and so on, together with room for a small garden for the priest and a kitchen yard for both the rectory and the convent.

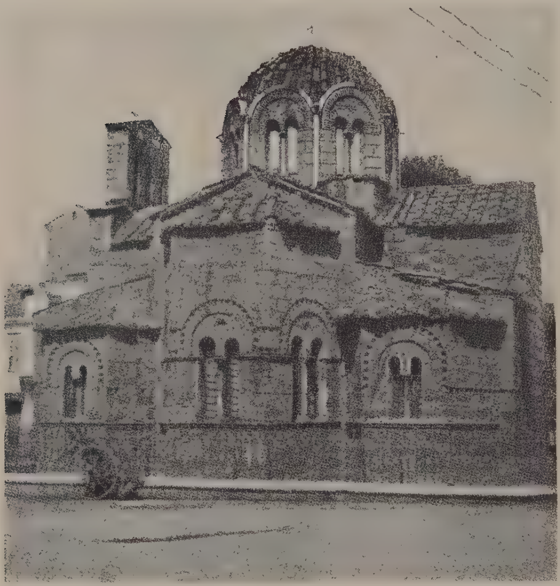


PLATE 60

ST. THEODORE'S CHURCH, ATHENS, GREECE

Here is a good example of Byzantine architecture. Many small churches of this type are to be found in Epirus, Athens, Thessaly, and other places in Greece. It is difficult to date them, as from the eleventh to the fourteenth centuries a great many of these were built, and in the Near East builders kept pretty well to the beaten track in those times. This church has a plan with transept, choir, apse, and aisles. Stone, brick, and varicolored tiles are used on the exterior. The dome is typical of Byzantine work, and the mass of brick work over the windows at the base of the dome is also characteristic of the style. Observe how nicely the bell-cote is placed on the gable of the South wing of the transept, shown in the picture at the left.

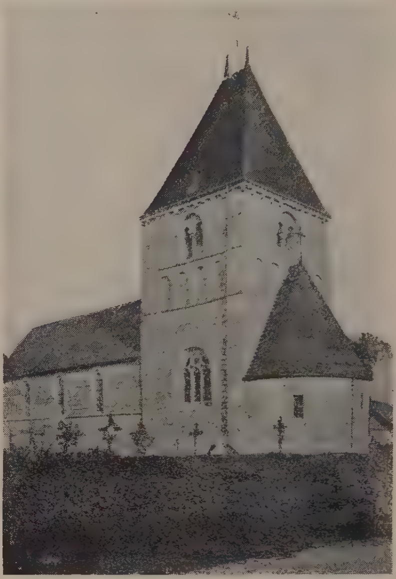
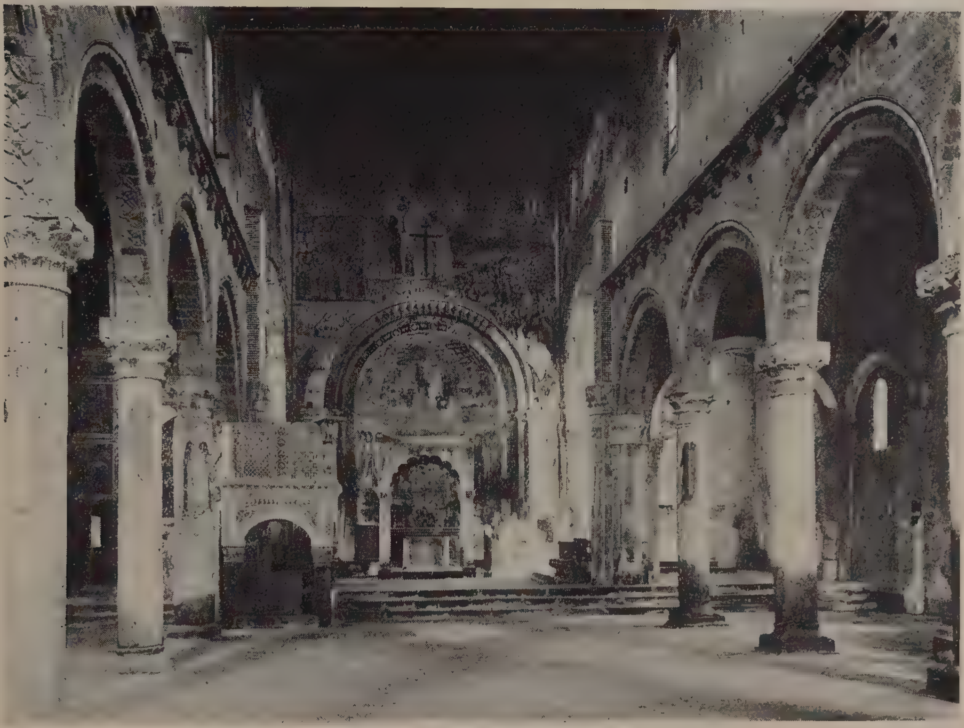


PLATE 61

CHURCH AT YAINVILLE, NORMANDY, FRANCE

From this sturdy, eleventh-century church of Normandy one can get a fair idea of the type of architecture which was taken to England by William the Conqueror and his followers. This type is well exemplified in the Church at Iffley, near Oxford (see Plate 54). The plan of Yainville church shows a nave, a choir under the tower, and a sanctuary with neither aisles nor transept. The building can lay claim to having sereneness in its proportion, simplicity in its composition, and charm in its silhouette.

We may now discuss a general plan for such a group of buildings. The size of the property has been noted, as well as the number and variety of the buildings. These the congregation usually sets out to erect one at a time. This is a pity, for, were it possible to have sufficient funds at the inception of the project to complete the group, superior results would be forthcoming. However, nothing further need be said under this head, since this possibility is so remote as to be almost negligible. Groups can be made considerably finer than they are today, if the buildings are massed together in a rationally planned and artistic way as were the monastic buildings of the Middle Ages, and undoubt-

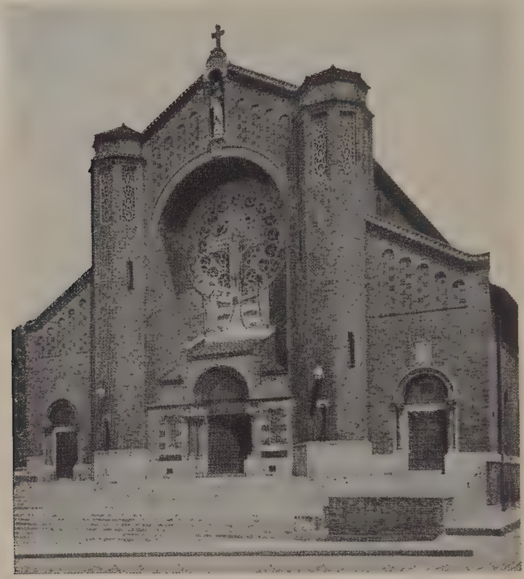


The Interior PLATE 62

CHURCH OF S. MARIA MAGGIORE, TOSCANELLA, ITALY

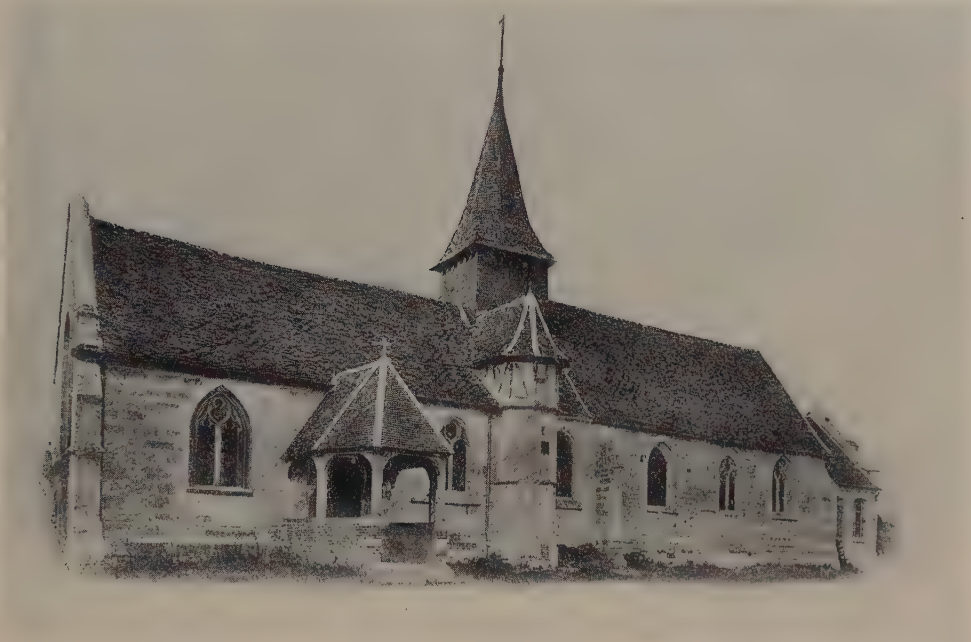
This ninth-century church has an interior that is excellent in its proportions and vigorous in its details. All-stone walls are found within as well as on the outside of the building. The choir is raised on three steps. The column capitals are all varied in design and beautifully chiselled, and flat four-leafed flowers appear on the intrados of the nave arches. The pulpit is an interesting example containing a great variety of flat, interlacing strapwork ornaments, similar to those almost universally found on the Celtic crosses of Ireland. The ciborium over the altar, with its cusped arches and pyramided top, the apse with its engaged shafts and receding arches, and the frescoes in the choir, give a faint idea of the splendor that this ninth-century church gave forth when it was in its prime. The roof, of open timber truss work, is generally similar to that in the San Miniato Church at Florence.

edly groups should always be arranged in this way, unless there are very weighty reasons against it. Rarely indeed do we find beautiful and harmonious groups of parochial buildings in this country. For the most part, the main reason is that there has been no preconceived plan, and various architects have been employed on the buildings at various times. Perhaps the excuse for the lack of a harmonious general scheme is, that great growth in the parish was not anticipated, or was not thought likely. Today, a new parish contemplating building can usually be assured of future growth, and for this reason the property purchased at the beginning should be of dimensions sizable enough for the entire group. An architect should be employed to lay out the group, and his scheme should be adhered to, as the buildings are erected from time to time.


(John T. Comes, Architect.) PLATE 63

ST. AGNES' CHURCH, PITTSBURGH, PA.

Let us call to mind a typical parish group of today, with its anomalous array of buildings scattered over the property without reason or due regard to the site. The church is perhaps in the Gothic style, with rock-faced stone for the walls and red tile for the roof; the rectory represents yet another type of architecture and material, while the school will have its exterior walls of yellow pressed brick and glazed terra-cotta trimmings, supporting a flat roof. Finally, the convent, constructed with stucco walls and asphalt-shingled roof, gives vent to another discordant note in this quartette of buildings.

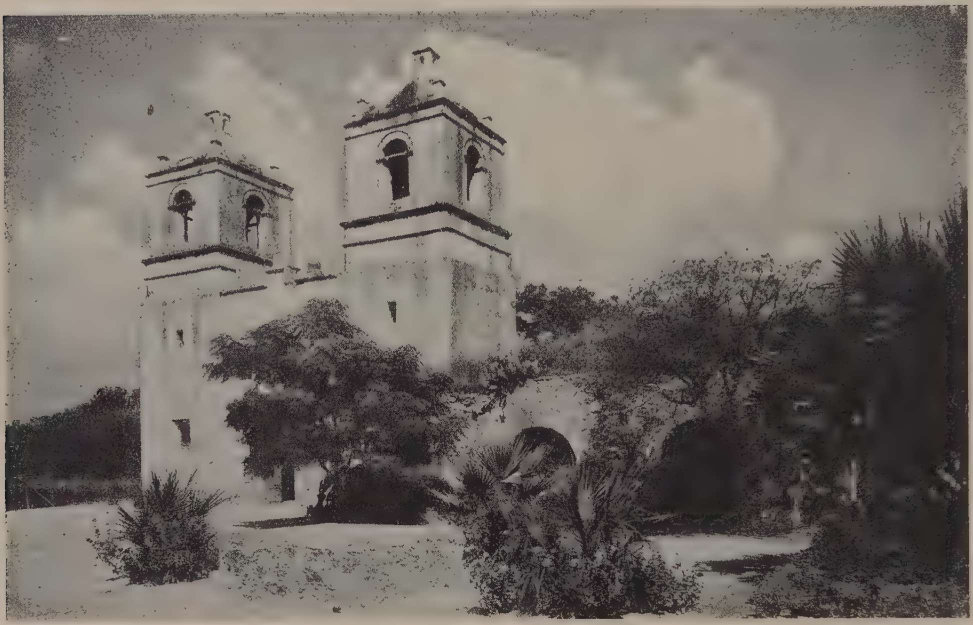


South-West View PLATE 64

CHURCH AT PINTERVILLE, FRANCE

In the village church of Pinterville we find a charming miniature. There are no aisles for either nave or choir. A large West window, a charming polygonal wooden porch, a stair turret to a belfry, a nave, a choir and a sanctuary, are the elements that compose this tiny church.

Surely, such an unhappy state of affairs should be no longer tolerated. From the very first, care should be taken to draft the plans to meet the exigencies of the situation, to cope with the deficiencies of the property, and so on. The proper orientation for the church, school, rectory, convent, and other buildings should be determined as one of the very first preliminaries. When at all feasible, the correct liturgical orientation for the church (that is, facing West) should of course be taken into account. If it is possible, the school should be so arranged that the classroom windows face East and West rather than North and South, so that each and every classroom will be flooded with health-giving sunshine for at least some part of each bright school day. As is obvious, all of these things cannot, for various reasons, invariably be done.



(Courtesy of "The American Architect.") PLATE 65

South-West View

MISSION CHAPEL DE LA PURISIMA CONCEPCION DE ACUNA,
SAN ANTONIO, TEXAS

This church is a well-proportioned, dignified, and simply designed example of Spanish Colonial architecture. Its West front is modeled after the same source as San José de Aguayo in the same neighborhood (Plate 55), and perhaps the same architect designed both. In comparing the fronts of these two mission churches, note that all windows in the tower are identical in form and position, and that the greatest difference between the buildings occurs at the tops of the towers on the angles. On the outer walls of La Purisima Concepcion are still to be seen remnants of polychrome decorations.

It is evident that no universal rules can be made for the laying out of parochial groups, as all depends upon the exact size, shape and contour of the property, the position of the streets and neighboring buildings, and the different units of the composition. In every individual instance, the architect must make studies of the group on paper to find the best architectural solution. In general, however, the following criti-

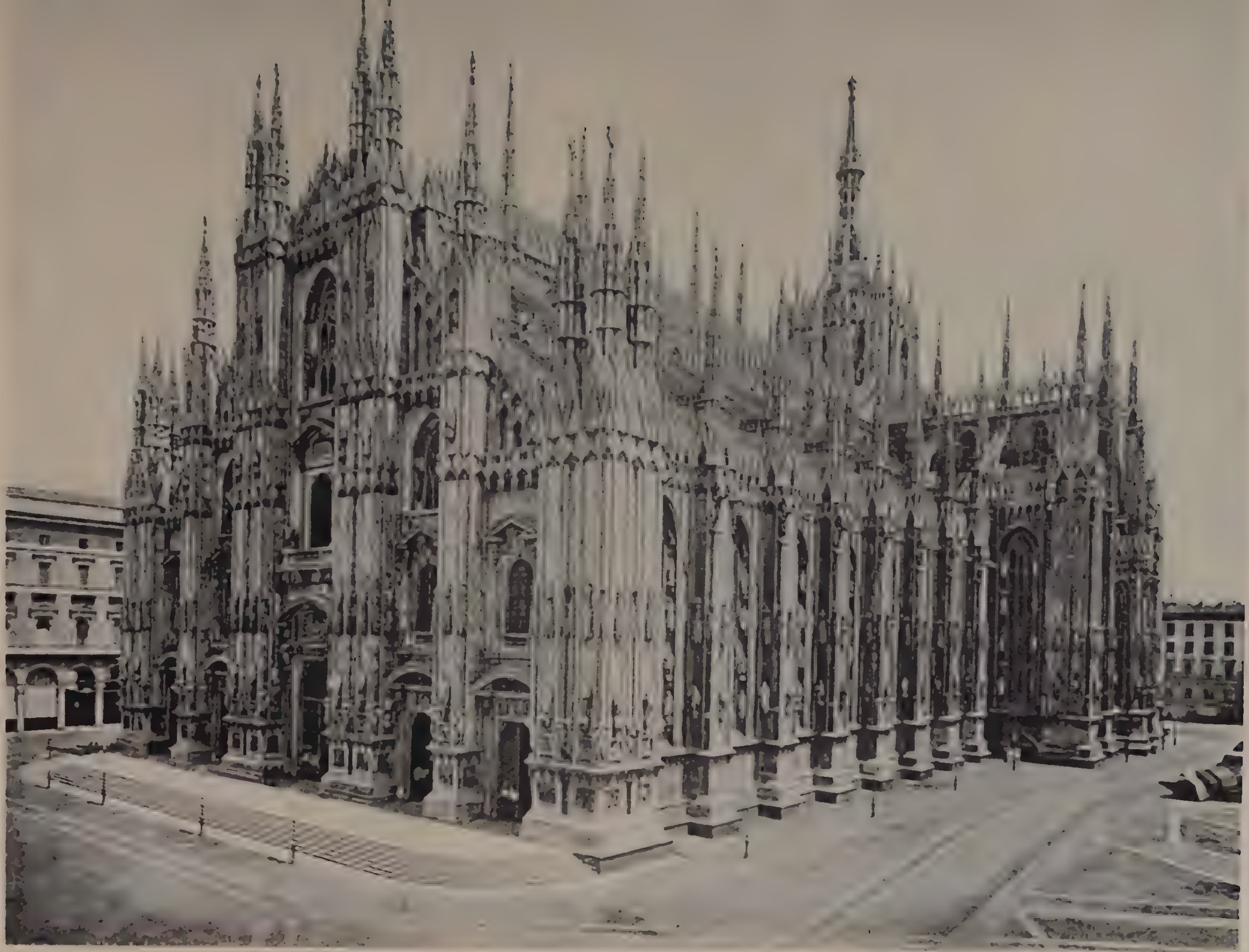


PLATE 66

CATHEDRAL OF MILAN, ITALY

Milan Cathedral (1385–1485) is entirely in the Gothic style, save for some of the windows and all of the five doorways on the West front. It is the third largest church in the world. Both nave and choir are flanked by double aisles; the transept has single aisles. There are no lateral chapels, and the apse has a single ambulatory only. Over the crossing is placed a lantern, and the aisles and nave graduate in height from the outside, producing the effect of Bourges Cathedral. There is no triforium as in French and English Gothic, as the great height of the inaisle arches precludes this. A feature of the interior is the great pier capitals, made up of pinnacled and canopied niches containing statues of Saints, each of which is twenty feet in height. The entire building is of pure white marble, the roof consisting of thick slabs of the same material. This most original and ethereal creation has inspired poets and artists. On the West front there are nearly 200 statues, and on the lateral façades, roof and lantern there are thousands more.

cisms may be applied to the parochial groups thus far attempted in the United States.

Most groups are entirely too symmetrical. In planning a parish group it is best not to attempt symmetry; the most important requirement is balance. The different functionings of the four or five buildings are so varied that symmetrically arranged groups are really impossible. These functionings result in buildings of different shapes and sizes. Let us, for instance, take a project like the following: Wanted a church of one thousand sittings, a school containing sixteen classrooms, a rectory for three priests, a convent for about eighteen sisters, and finally a lyceum building. It often happens that the attempt is made to

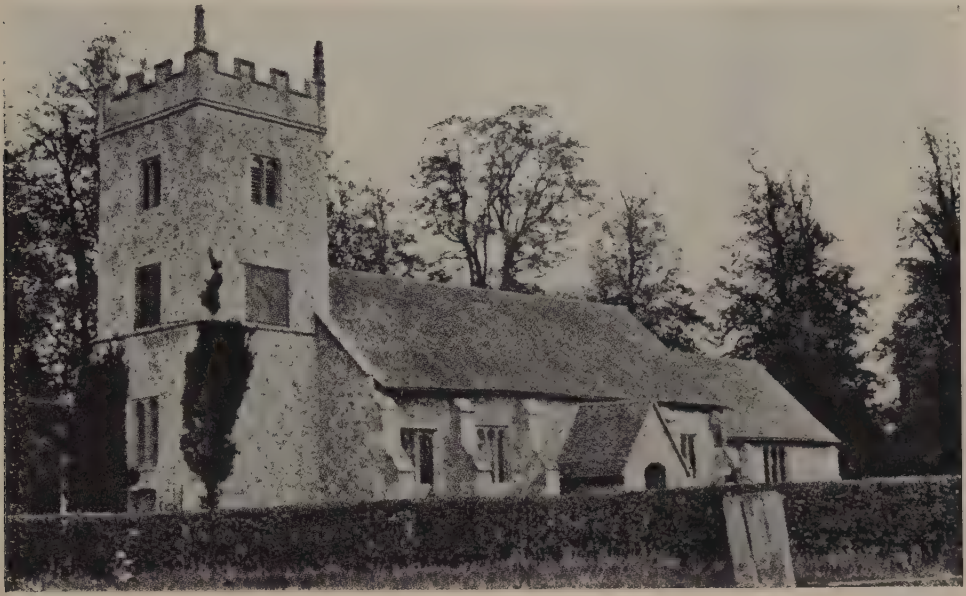
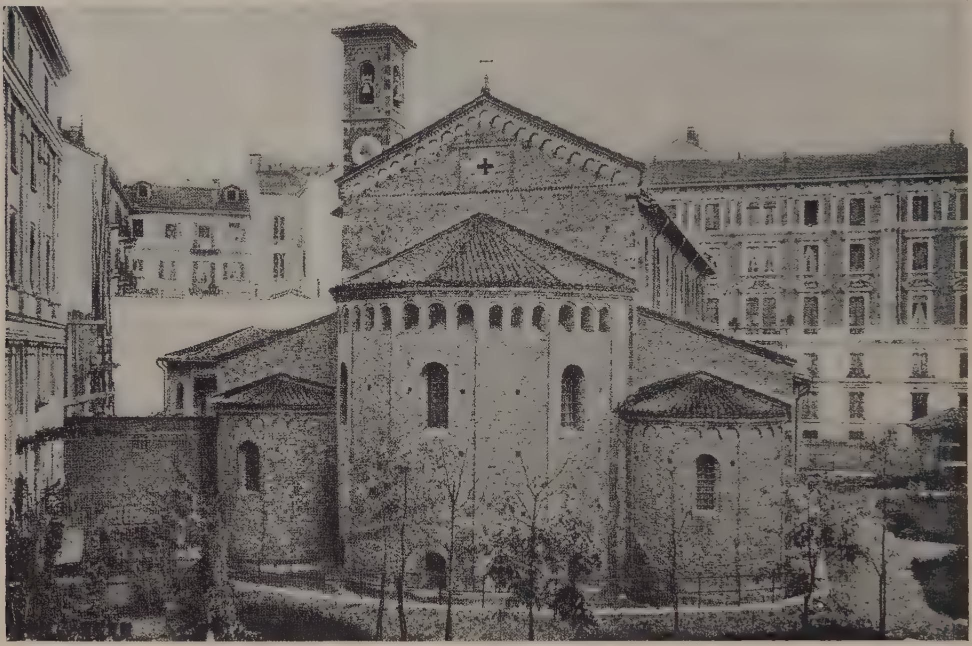


PLATE 67

CHURCH OF STRATFORD-UNDER-CASTLE, WILTSHIRE, ENGLAND

For a small church built in an inexpensive manner, it would be hard to imagine anything more charming. Of cut stone detail there is practically none, if we except the four corner pinnacles of the tower, the entrance, the weatherings of the buttresses, and so on. The building is in a simple, Late Gothic style, and the walls are flint stone, placed between larger blocks of Cotswold stone. That the tower is without buttresses, that the chancel roofs falls below that of the nave, and that the lateral porch has a generous projection, are items of interest in the design of this beautifully proportioned little church. The lack of great arched windows does not seem in the least to remove from the structure the necessary ecclesiastical atmosphere. The large square clock and the corresponding opening in the front of the tower are interpolations of a later date, and ought to be eradicated.

balance the huge sixteen-room school building with the lyceum, placing them on the right and left at the front of the property. The church, occupying the center of the lot, is flanked at the rear by the rectory and convent in another vain effort to produce balance. On paper, this sort of symmetry may look well enough. In reality, it cannot be successful, for the great school with its high ceilings and enormous mass (two stories and basement) and its entirely different form cannot possibly balance with the lyceum, which is probably of only one story. And as for the rectory, how can it (just a large-sized house) balance a building like the convent, which has, besides the cells, several quite sizable rooms —the refectory, and the community room, and chapel? This apparent symmetry on paper is almost always a deception. There can be no symmetry where balance is lacking; consequently, unless shams, make-be-

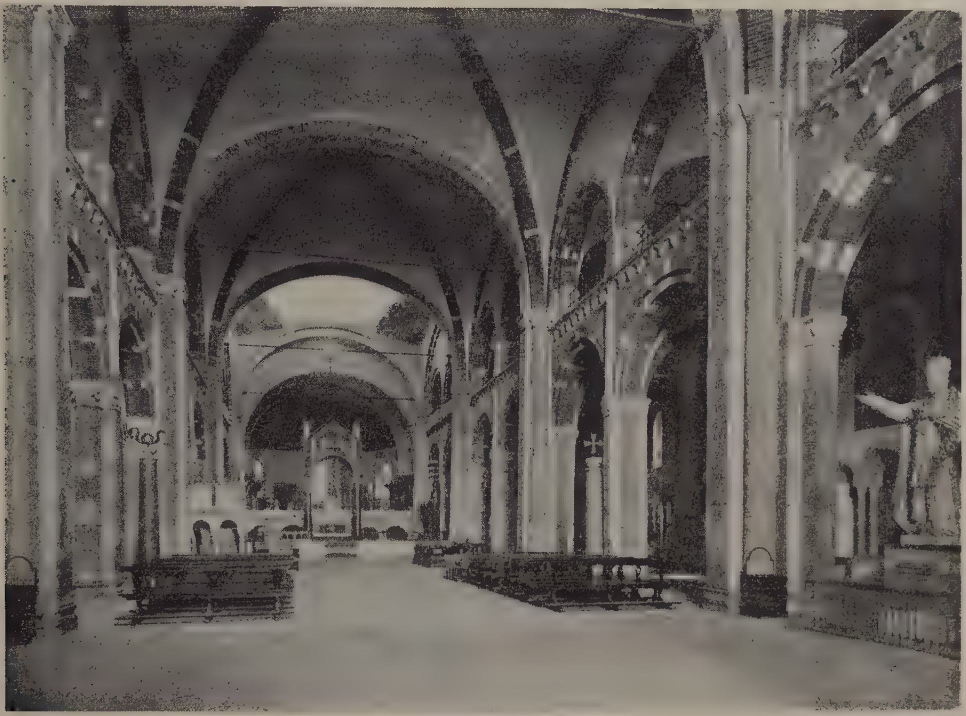


View of the Apse PLATE 68

BASILICA OF S. VINCENZO, MILAN, ITALY

This Lombard Romanesque basilica furnishes additional evidence that it is quite possible to have well-designed apses on inexpensive churches. Here we have only ordinary brick, together with a few stucco fillings under the arches of the corbel tables on the rakes of the tables.

lieves and all sorts of distortions are resorted to, a group such as this can never be made to look well. The toleration of shams and camouflaging in ecclesiastical buildings is something deplorable. The camouflaging necessary to make these various buildings balance one another involves bad art, for shams and make-believes are nothing more nor less.

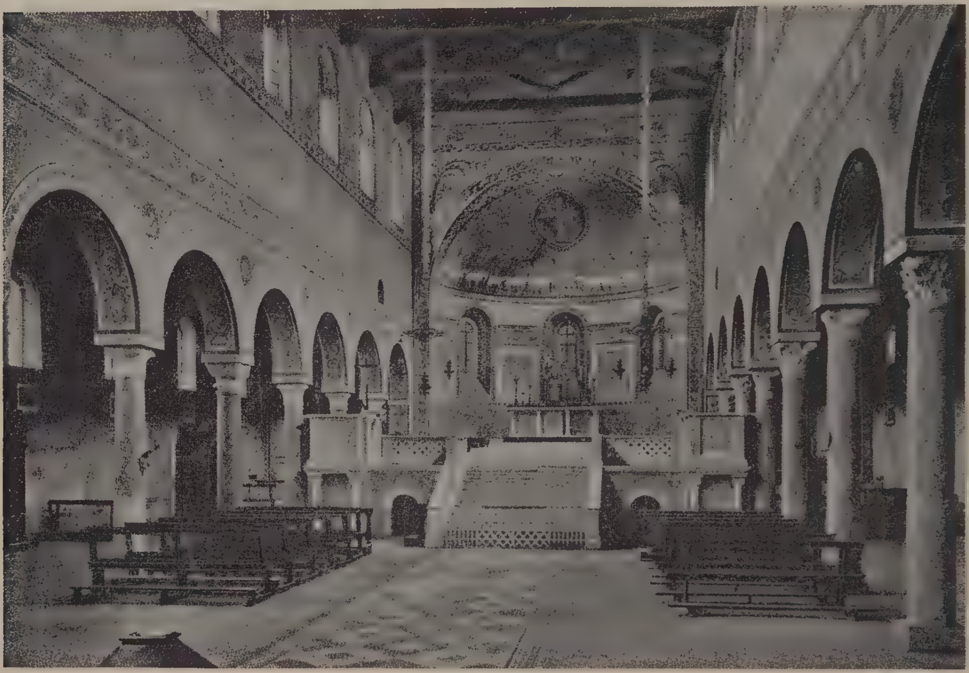


The Interior PLATE 69

ST. AMBROSE'S CHURCH, MILAN, ITALY

The original church on this site was built by St. Ambrose in the fourth century, but the present building dates from 1140. It set a type architecturally for early Lombard churches, just as St. Ambrose set a type for metrical chants and hymns. St. Augustine was baptized in the original church, and here German Emperors as well as Lombard Kings were crowned. In front of this church is the only existing Lombard atrium. Note the use of brick arches over the stone columns and the absence of a clerestory.

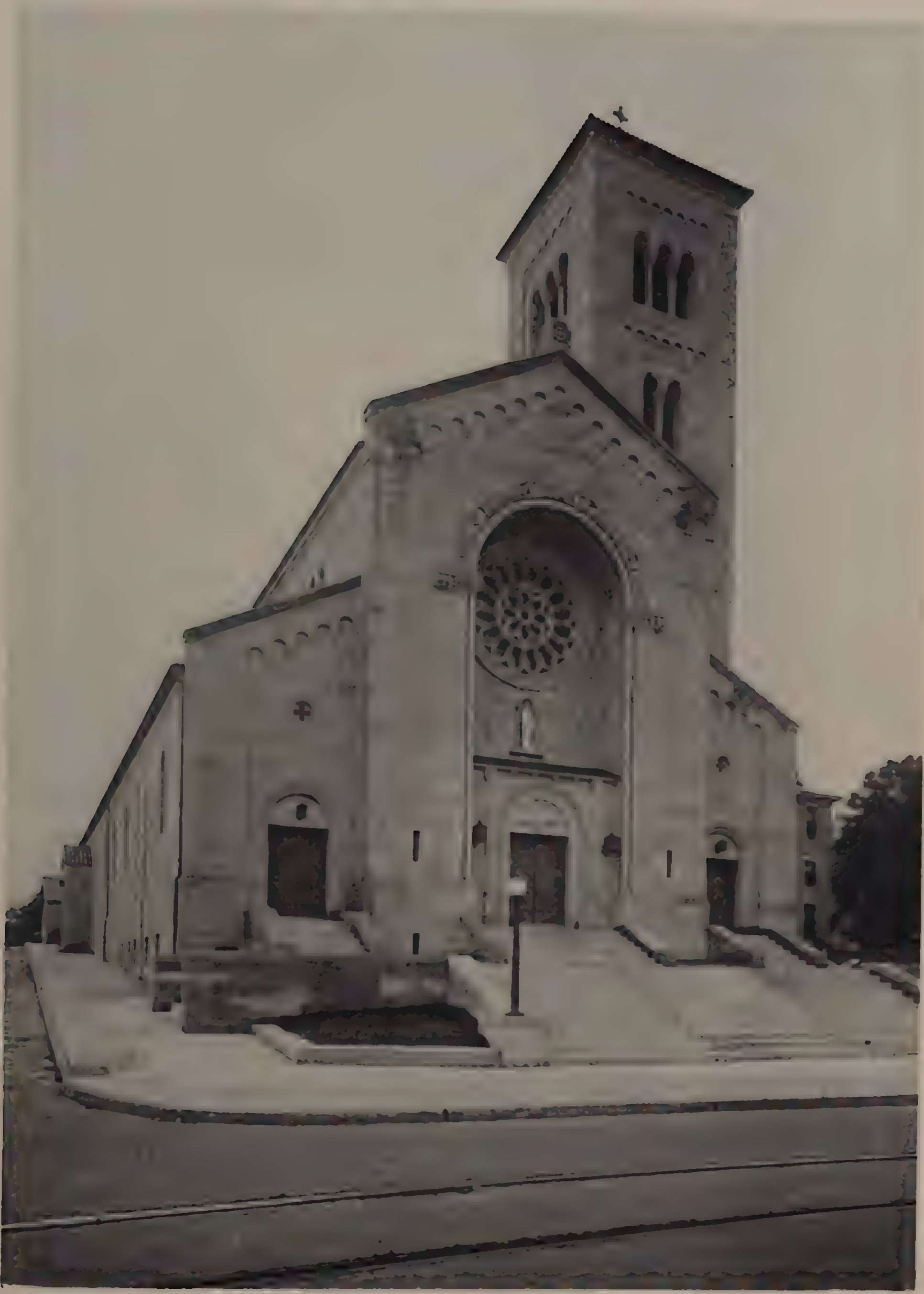
The medieval period, when art was at its best, permitted symmetry only when the plans were actually and without exaggeration symmetrical. The great abbeys and conventual establishments were never symmetrical. The medieval cathedral group was not symmetrical in plan, although the main façade of a cathedral itself was often approximately so. Still, even there slight dissymmetries were introduced to remove the cold formal look and give that touch of the romantic which is always typical of this period of art. Let us take one of those matchless medieval cathedral façades (which, to the casual observer, seems perhaps a perfectly symmetrical composition), consisting of two towers with a gable and rose window between, a grand triple portal, and so on. Upon examination one detects many slight variations; for instance, one tower will be wider than its sister; then, too, the tracery in the bell stage opening of the Southern tower will not be repeated exactly in the Northern one, and the roofs or pyramids of the towers will not be identical. Nevertheless, balance obtains throughout the



The Interior PLATE 70

BASILICA OF S. VINCENZO, MILAN, ITALY

This basilica dates from the time of Abbott Giselberto (about 833). The building was restored in 1885–1888. It has antique columns and capitals, a raised *confessio,* and two ambones. Its lines and proportions are good, and the decorations add considerably towards showing them to their full advantage.



(Edward J. Weber, Architect.) PLATE 71

IMMACULATE CONCEPTION CHURCH, CLARKSBURG, W. VA.

façade. Subtle differences of this kind and numerous even more pronounced ones are to be found in all buildings of this marvelous period of art.

In like manner the ancient Greek never sought symmetry in his group plan. To prove this, we need but glance at that most unsymmetrical double temple (the Erectheum) on the Acropolis at Athens. It is a group plan of buildings, so to speak, a double temple not placed back to back like the Temple of Venus and Roma at Rome, but the back of the smaller temple is placed against the side of the larger and towards the rear. A porch (called that of the Caryatids) is placed against the opposite side of the large temple, also towards the rear. The plan of the Acropolis itself is also as picturesque and romantic in its group conception as any medieval conventual establishment. Thus, it is clear that the ancient Greeks and the medieval architects were alike opposed to the use of symmetry in their plans of grouped buildings. Some today think that the primary and sufficient aim in planning a piece of architectural grouping is geometrical symmetry. When group plans are in question, it is far better to follow in the footsteps of the masters of the two greatest periods of art the world has ever known—the Medieval and the Greek.

A word about the treatment of the landscape—generally the thing least thought about. No money ever seems to be available for landscape and play-yard treatment. The public schools always appear to have plenty of planting about them, but our parochial groups of buildings seldom have any. Fences and walls or hedges of privet should mark the boundaries, and climbers such as vines or roses should be placed on the fences to aid in cheering up the whole property. Hedges are preferable to fences on street fronts, for they leave the place open and more inviting. Plenty of ivy on the walls helps tremendously, but, when it begins to run wild over statues, carvings, windows and the like, it should be trimmed. Evergreens and shrubbery will do their share in beautifying the surroundings of the parish buildings, which are unfortunately often among the most untidy spots in the neighborhood. How often do we see weeds allowed to accumulate, the lawn uncared for, and the whole parish plot in a woeful condition!

A proper lawn with vines and trees will not cost a great deal either initially or for upkeep. The buildings should be brought to coördinate with the grounds by means of planting, and this coördination can be achieved in no other way. The green of the lawn must be carried by vines and shrubbery up the walls to link the buildings to mother earth, so that the structures are not only in reality rooted into the ground, but have likewise the appearance of being so. In this way there result stronger and more monumental-looking buildings, for planting acts as a sort of spreading base for the structures.

To conclude this chapter, I wish to plead that we try to emulate the medieval monks, who wrought homogeneous groups rationally planned according to orientation and convenience, and adapted to the different functionings of the various buildings. By cloistered courts and vine-clad walks their various units were linked in a manner that makes us marvel at their tremendous power in ingenious composition and clever planning. This desire to coördinate the buildings to their surroundings also explains the wealth of exquisitely chiseled images of leaf and flower that decorate their buildings:

> Nor herb nor floweret glistened there
> But was carved in the cloister-arches as fair.

The marvelous proportions of both the interiors and the exteriors of these medieval groups furnish the great model for our parochial buildings of today. To their groupings, their altar-building, their metal-working, joinery and painting, we may all turn for inspiration. From these venerable monuments, we can learn how to express the beauty and mystery that is inherent in our holy religion. And, even if we are incapable of fathoming all their endless wonders, we may at least make a concerted effort to recapture some of the glorious spirit of this wonderful architecture, which expresses the highest spiritual aspirations of man. Our imitation of these buildings, of course, must not be slavish, for our plans must be adapted to modern conditions and local requirements. But, with proper effort and study and the greater facilities for construction that we possess today, there is no reason why we should not create parochial groups that will tell something of the beauty and sublimity of our religion to even the most casual passerby.

CHAPTER IV

THE SMALL CHURCH, AND ARCHITECTURAL STYLE IN GENERAL

IT is the small church especially that needs a great deal of attention, because it is perhaps here that the disregard for architectural quality is most frequently encountered. To formulate a set of rules that might be used by a building committee to build a small church (or, for that matter, any other building), is of course not practicable, nor would rules and formulas be very beneficial unless seconded by the talent of a trained architect. No attempt, therefore, will be made to set down minute details, but some advice and suggestions that will be of assistance to prospective owners are proffered.

Every church is an individual problem in itself, depending to a great extent on the location and size of the property and the magnitude and cost of the building. There was a time, in the medieval period, when the people themselves built the churches. Art was then a living thing, and part and parcel of the lives of the people; the very workmen were then artists. Today art is an exotic thing that has to be taught in schools. We build art museums to teach art, but, the more museums we build, the less artistic the people seem to become. But, if the medieval stone and brick masons, carpenters and metal-workers were artists, their successors of today require the guidance of the architect, if any semblance of architecture is to result. It is a pity that matters are in such a state, yet here is a condition that must be faced, and the best will have to be made of it.

In building a church there are certain liturgical regulations to be observed, but, as we see proved on every hand, the mere fulfillment of these liturgical precepts does not produce soul-satisfying or beautiful churches. The artist and liturgist must work together for successful results. The architect must make use of his imagination in studying and preparing his plans, always keeping in mind the liturgical requirements.

It may be well at this point to say a few words about the general plan of a church, and the same remarks will apply to any church, whether large or small. While it may be perfectly evident to all what this plan is, we are so accustomed to seeing the church day in and day out that perhaps we never stop to consider its separate elements, but take too much for granted. Let us see, then, of what the plan of a Catholic church consists. There are six liturgical divisions. Beginning with the liturgical East end of the church (the portion of the church reserved for the clergy), we find: (1) the sanctuary; (2) the choir; (3) the sacristy; (4) the nave; (5) the baptistery; and (6) the narthex. These divisions should never be omitted in any Catholic church, although it is obvious that in some small mission churches the divisions will often be only theoretical. In liturgical language, the

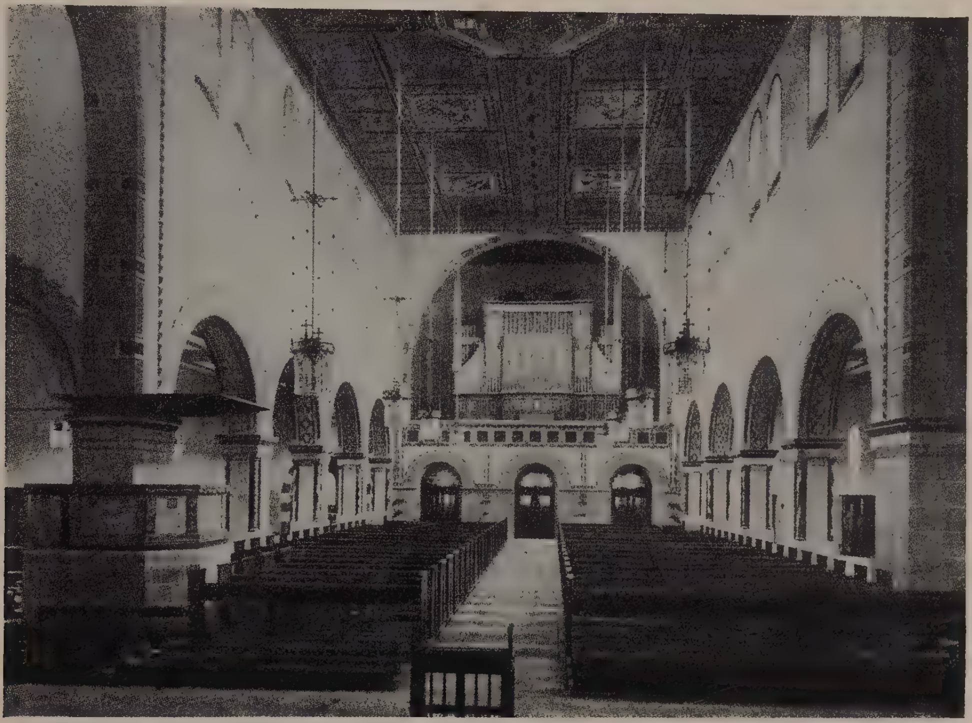
(Courtesy of "The Western Architect.") PLATE 72

The Interior

ST. VINCENT DE PAUL'S CHURCH, LOS ANGELES, CALIF.

(Albert C. Martin, Architect.)

choir is the place reserved for the canons attached to the church, where they attend the liturgical functions. The choir of singers may be located in this place (and some modern Catholic examples can be pointed out for precedent), but it is now generally customary to place the singers in the West end of the church in a loft. If desired, the singers may also be located in a gallery to one side of the sanctuary or in the rear of the high altar.



The Interior, Looking towards Organ Loft PLATE 73

CHURCH IN HÖCHST-AM-MAIN, GERMANY (MODERN)

Aside from the liturgical parts, there are other necessary portions of the church edifice—for example, the boiler or furnace room, although this is sometimes contained in a central plant outside the building. A basement for fairs and entertainments is also occasionally demanded, and sometimes a room for committee meetings, but perhaps the latter is beyond the needs of a small church.

When we consider that the liturgical requirements for the small church are identical with those for the large church, it is apparent that the differences between the two may usually be reduced to a question of the degree of size and richness to be employed in their execution.

For the purpose of this chapter, let us say that the small church will range in seating capacity between 250 and 400, and that it is to be built economically. A church containing fewer sittings is usually regarded as merely temporary. Such a building should be designed along very plain lines, with a certain naïve simplicity pervading the whole. The materials, while not expensive, should be durable, and the construction throughout must express that reverence and dignity requisite in every Catholic church.

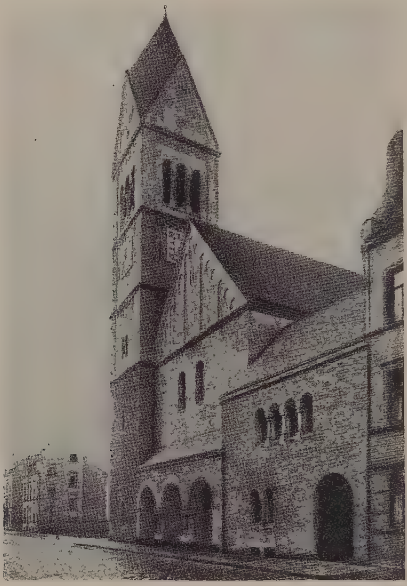
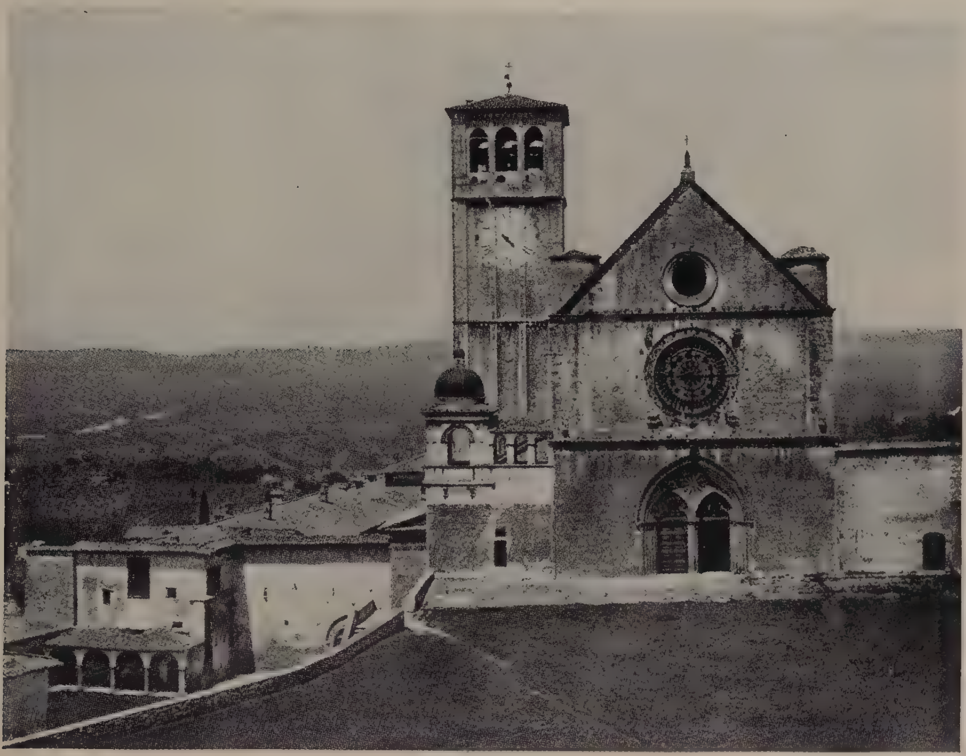


PLATE 74

CHURCH IN HÖCHST-AM-MAIN, GERMANY (MODERN)

Since, as already intimated, most small church problems have to do with economy, it is necessary that restraint be exercised in both the interior and exterior. If any spare money is available beyond bare necessities, it should be applied to enriching the chancel. The small church is quite a problem for the architect, but one who cannot build an inexpensive church of this type artistically, does not deserve an opportunity to practise on an expensive one. It is very nice to have beautiful traceries and carvings, but architecture is fundamentally a matter of proportion, of dignity in mass, and simplicity of composition, rather than a matter of detail; and many details for which one might have a warm place in one's heart will necessarily have to be sacrificed when it comes to building the economical small church.



West View PLATE 75

CHURCH AND MONASTERY OF ST. FRANCIS, ASSISI, ITALY

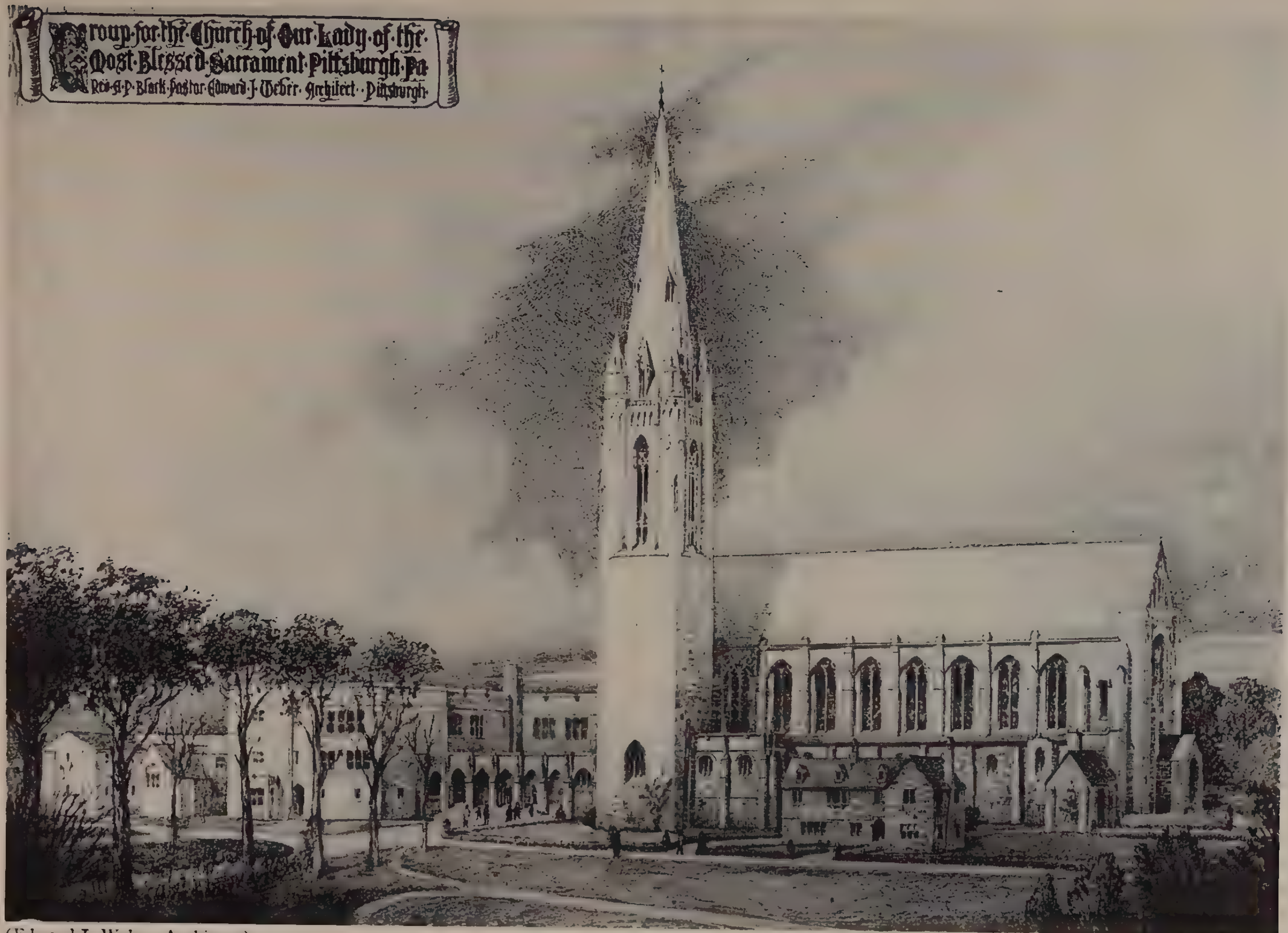
This great double church, consisting of a lower and an upper church, was erected shortly after the death of St. Francis. The foundation was laid in 1228. After four years of toil the lower church was ready for divine services, but the upper church was not finished until the year 1253. The West front is, in the main, Gothic, save for the arcade and domed edicule at the North end of the front, which are built in the Renaissance style. From this point of view the building is on the whole a very fine sample of Italian Gothic art. The rose window and the main portal are exceedingly fine and well proportioned.

In the old days of building, a great many of the neighboring small churches were built to a great extent alike; several twelfth-century churches in Pavia, Italy, bear witness to this, and the two fine Romanesque churches of moderate size in Toscanella, Italy (Santa Maria Maggiore and San Pietro), are quite similar. This is equally true of a great many old churches of modest dimensions in some of the counties of England, but accidents of time, an addition here and an alteration there, have modified them so that they differ from one another a great deal more today than when they were first built.

Some idea of the size of the church floor plan for a given seating capacity may be desired. The spacing of pews and the width of aisles will largely determine this. Pews are generally spaced 32 inches back to back, and the width each person occupies is usually fixed at 18 inches; therefore, a pew six feet long will contain four people. A width of from 4½ to 5 feet is ample for the center aisle between the pews; for the side aisles 3 feet is sufficient, if the pews are on one side of the aisle only. Sacristies about ten feet by twelve feet are roomy enough. It is difficult to state any definite dimensions for the sanctuary, the narthex, the width of the nave, etc., as these are relative and entirely a matter of study governed by the conditions of the problem in hand. Contrary to the way it is here used, the word aisle in general does not mean the passages between the pews, but rather the wings of the church separated from the nave by columns or piers.

It is hardly necessary to mention that the traditional plan of a Catholic church, which is that of a long nave (or ship), should always be used in preference to the "spectatorium" or auditorium plans of sectarianism. In the small church the plan might be a simple nave without aisles, or a nave with a clerestory and two aisles, or a nave without a clerestory and two high aisles, or a nave having a clerestory on one side of the church only. For a church of modest dimensions a transept is hardly possible, and is both expensive and inappropriate.

It seems logical to suppose that a church without aisles at all is cheaper. This, however, is not the case, for extra height is needed to secure correct proportions, and the excessive span of trusses in churches without aisles militates against economy. Great spans for trusses mean great height for the church, and consequently extra cubical contents, and this means extra expenditures. A squatty interior results when the


Group for the Church of Our Lady of the
Most Blessed Sacrament Pittsburgh Pa
Rev. A. P. Black Pastor Edward J. Weber Architect Pittsburgh

(Edward J. Weber, Architect.)

PLATE 76

GROUP FOR THE CHURCH OF OUR LADY OF THE MOST BLESSED SACRAMENT, PITTSBURGH, PA.

nave is not built to a height in proper proportion to its width. It is a great pity that there is such a general prejudice against columns which have seats behind them, for a great deal of money can be saved if the side aisles are widened to contain sittings. The nave can then be narrower and consequently reduced greatly in height. Columns are not actually objectionable. If there are not more than four or five in the length of the church, they do not obstruct the view of the altar to any appreciable extent.

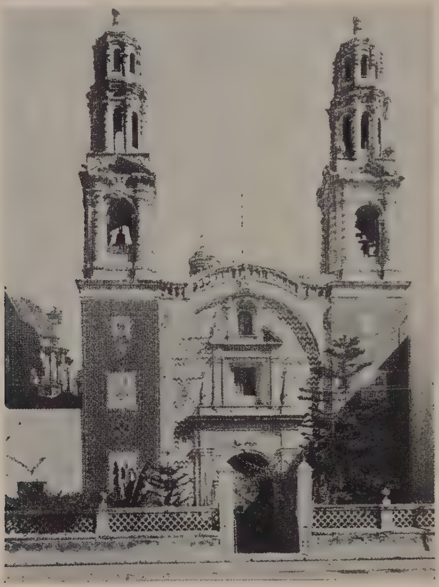
(J. F. Bentley, Architect.) PLATE 77

North-West View

HOLY ROOD CHURCH, WATFORD, ENGLAND

Basement stories, although often demanded, are not very desirable in churches. The building has a better appearance when it is set on the ground, and without having its foundation walls pierced by innumerable windows. Besides, after a time basements usually become damp, dark and dingy. For such basements no precedent can be found in the beautiful examples of ancient church architecture. Crypts are sometimes found under the apses, but these can hardly be considered basements. The Church of St. Francis at Assisi is not an exception to this rule, for it is really two churches, one above the other. In the crypts of ancient examples our forefathers were content with small apertures for windows. Today such great glass area is demanded for basements under churches that the building suffers through having the apparent strength of its base impaired.

Where there is no basement story, an excavated space (say, three to five feet high) for steam pipes can be arranged. Another method is to place the floor directly on the ground, but this means that trenches for the heating lines will have to be installed.



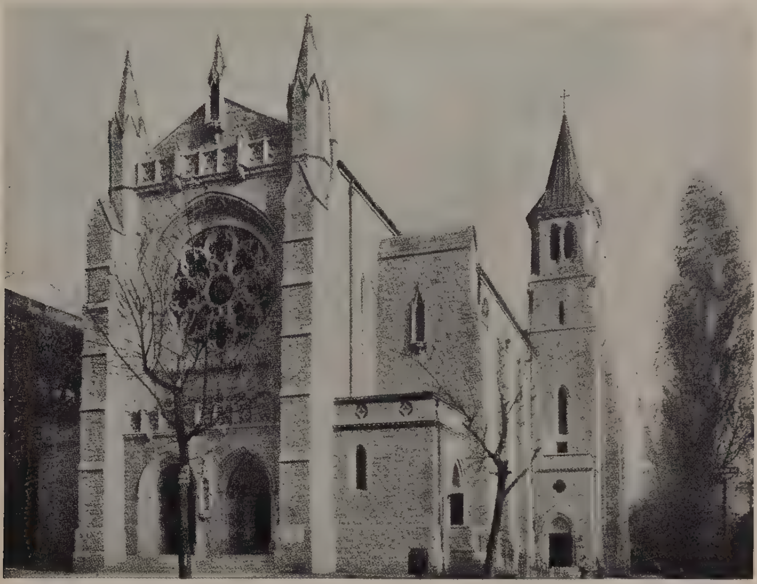
The West Front PLATE 78

SANCTUARY OF GUADALOUPE, PUEBLA, MEXICO

The architects of the churches of the early Franciscan and Jesuit missions in America did not spare their imaginative powers in designing them, as is demonstrated by the examples which they have bequeathed to us. The subject shown here is a glorious work. The shafts of both towers of this church are covered with colored tiles, which also form the filling around the doorway motif. The toppings of the towers, the doorway, and the details generally, are related more to the middle period of Spanish Renaissance than to the Churrigueresque or late period. The wall, the gate-post and the open balustrade in front of the church add charm, and the dome silhouette at the left of the picture is by no means displeasing.

If stone is used for the exterior, it may have a rough or a smooth surface. It should always be laid with varied heights for the courses and different lengths for the blocks. Rough stone with limestone trimmings looks well, and brick trimmings on stone walls are sometimes used with good effect. The side-walls of a small church may be low if a steep roof is used.

Common or tapestry red bricks make also a very appropriate material. Dull red bricks—all of the same even, monotonous shade—especially if laid in colored mortar, are not beautiful. Varied shades, with natural mortar and wide joints, should be employed. Harsh, mechanical, vitrified pressed bricks, laid to look like bathroom tile with a joint as small as possible, and similar absurd fashions ought not to be tolerated. Light-colored gray or buff brick had best be avoided, for a church built of such materials gives one the impression that the congregation wanted light stone, but could not afford it, and so contented itself with light brick as a cheap imitation. The medieval builders had no light-colored bricks, but the latter became very popular in the United States with the advent of the undesirable pressed brick not much more than fifty years ago.



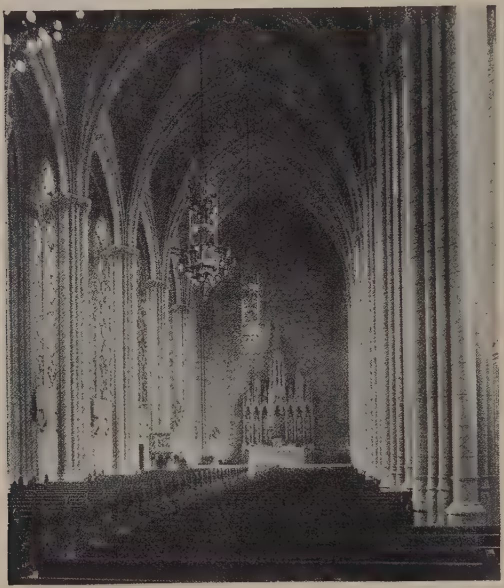
(Courtesy of "The Architectural Record.") PLATE 79

SACRED HEART CHURCH, JERSEY CITY, N. J.

(Cram & Ferguson, Architects.)

If stucco is used on hollow tile block, brick quoins can be built at the corners, around openings, and elsewhere. Stucco finishes are many and varied, but perhaps the rough finishes produce the most artistic effects.

Concrete blocks are sometimes used for an inexpensive temporary church, but they should never be of the rock-faced type—that is, they should not be made to imitate rough stone. Only blocks with a smooth surface should be employed.



(Courtesy of "The Architectural Record.") PLATE 80

The Interior

QUEEN OF ALL SAINTS' CHAPEL, BROOKLYN, N. Y.

(Reiley and Steinback, Architects.)

With regard to mass concrete, it can be stuccoed over or crandaled. It can also be painted with a cement wash, or the form marks can be left showing, provided they are fairly neat.

For church window jambs, a grooved brick specially made for this purpose is not very expensive, and it is very useful in aiding one to avoid the unsightly heavy wooden frames. The groove is made one inch wide and one inch deep, and the stained glass is set in the groove as in stone window openings. Brick sills are dangerous, for they are apt to leak in time. Stone sills are thus more advisable. The small stock-size steel casement sashes procurable today are perhaps quite suitable for sacristy and basement windows, but for the church windows the groove in the brick or stone will enable the congregation to save the cost of steel or wood frames. Besides, the nave and aisles are more churchly without frames of any kind. There are, in fact, generally too many windows in small churches, and they are as a rule too large, excepting rose windows, which are more likely to be too small.

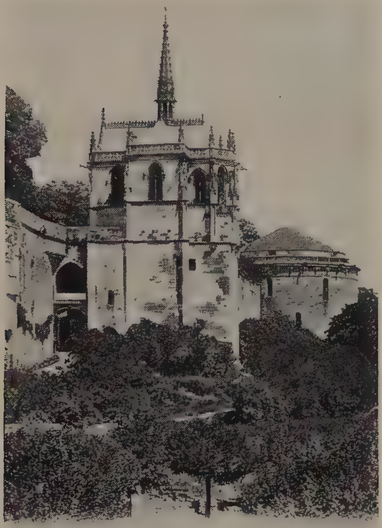


PLATE 81

Lateral View

CHAPEL OF ST. HUBERT, AMBOISE, FRANCE

This chapel, belonging to the Château d'Amboise, is considered a well-nigh perfect piece of Late Gothic work. Although a transept is rarely seen in such a tiny chapel, its handling by the architect is superb. Deep foundations for the chapel were required to bring the floor of the chapel up to the pavement of the terrace shown on the left of the picture. Note how the string course just below the top of the terrace parapet is carried around the chapel to bind it to the terrace wall.

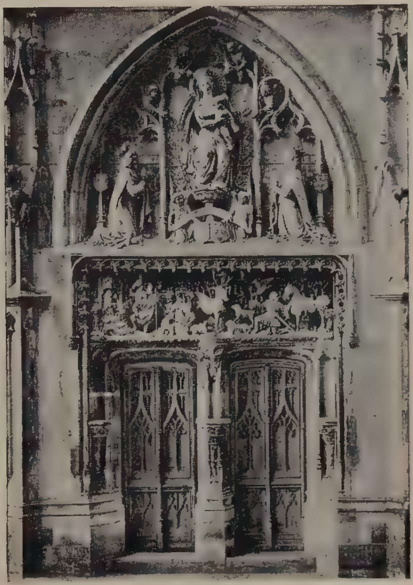


PLATE 82

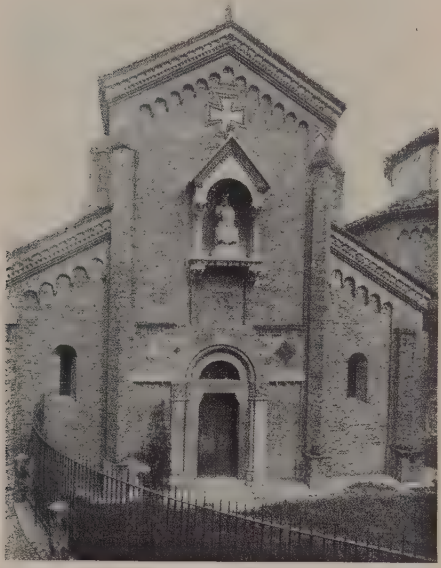
The Entrance

CHAPEL OF ST. HUBERT, AMBOISE, FRANCE

The Chapel of St. Hubert (Plate 81) has a wonderful decorative treatment of its doorway. The frieze over the portals pictures in exquisitely chiselled stone the vision of St. Hubert in the forest, where while hunting he beheld the Crucified Christ between the antlers of a stag. Château d'Amboise is located in the Loire valley, which in the autumn is one of the favorite hunting districts of France. What could be more appropriate than having the chapel dedicated to St. Hubert, the Patron Saint of Hunters? Above the frieze, in the tympanum under the arch, are carved Our Lady with the Holy Child and two kneeling Saints.

If tracery is used, let it be of real stone rather than have make-believe tracery of wood.

From the artistic standpoint, on the exterior there is a general tendency not to know when to let the building alone. As a rule, the exteriors are too fussy, have too many details, and too many varieties of materials.



(Courtesy "The Architectural Record.") PLATE 83

The West Front

BASILICA OF SS. PETER AND PAUL, BOLOGNA, ITALY

Architecturally speaking, this basilica has much to recommend it, for it is an outstanding demonstration of the fact that great beauty can be achieved by inexpensive means. Plain brick is used throughout, and practically the only details that would require expenditures above the normal are the canopy, the statue, and the doorway. Interesting brick details in corbels, patterns and arched corbel tables run up the rakes of the roof. The buttresses are V-shaped, like those on the lateral façades of San Zeno, Verona, Italy.

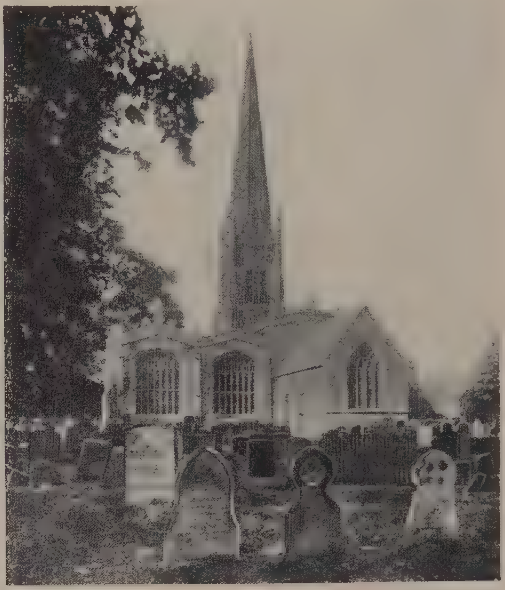


PLATE 84

South-East View

ST. MARY'S CHURCH, BLOXHAM, ENGLAND

In this English parish church it is interesting to note that all three of the English Gothic divisions—Early English, Decorated and Perpendicular—are shown in juxtaposition. The chancel at the right of the picture is Early English or thirteenth-century work; the tower is Decorated or fourteenth-century work, while the Southern aisle and the chapel belong to the Perpendicular, or fifteenth-century period. The steep roof and sharply pointed lancet tracery are characteristic of Early English architecture. There is great charm in these English parish churches. The tall spire, 198 feet in height, points as a finger guiding to heaven.

The roof is of great importance, as it must discharge snow and rain quickly. Parapet walls are dangerous where there is a sloping roof behind them, for they collect snow and ice and invite leaks. Steep roofs, rising about 14 or 15 inches to the foot are in harmony with certain kinds of buildings, and are most appropriate for churches designed on simple Gothic lines. A low-pitched roof (that is, one pitching about thirty degrees) is seemly for churches of the Romanesque, Byzantine, or the English Perpendicular Gothic types. It is possible to imagine picturesque small churches where wood shingles with heavy butts might look very well indeed. Graduated slate or shingle-tile, if they are not found too expensive in individual cases, will look well on steep-roofed buildings; otherwise, ordinary slate laid in an artistic way can be substituted. Mission-tile, Spanish-tile, copper and lead will be correct for the more flat-pitched roofs.

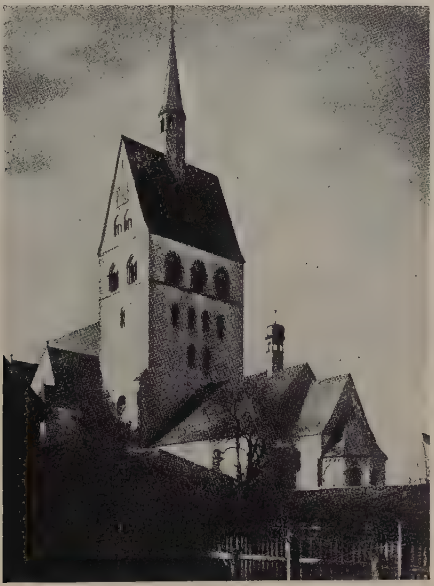
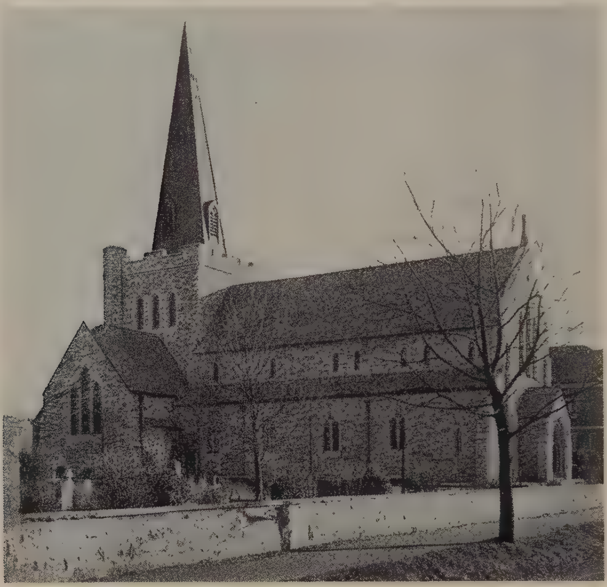


PLATE 85

CHURCH IN KIRCHLINDE, GERMANY

The tower and nave are modern, while the low portion at the right is ancient.

A tower on a small church seems a little too much to expect, but there are exceptional cases in which simple towers are possible. A tower should be built according to the true principles of Christian art, or else it had better be omitted. For example, many towers have their walls filled with too many large windows at the base and elsewhere. Naturally, a tower should open up well at the top to let out the sound of the bells and to express æsthetically the bell stage; but it is a mistaken notion to have many openings below this point. A puny insignificant tower should be avoided. A tower should have a certain proportion in keeping with the rest of the church; for, if it is too small, the impression of a terrible straining for an adjunct impossible of attainment, probably through lack of sufficient funds, is conveyed.



(Courtesy of "The Architectural Forum.") PLATE 86

ST. BRIGID'S CHURCH, WESTBURY, LONG ISLAND, N. Y.

(F. Burrall Hoffman, Jr., Architect.)

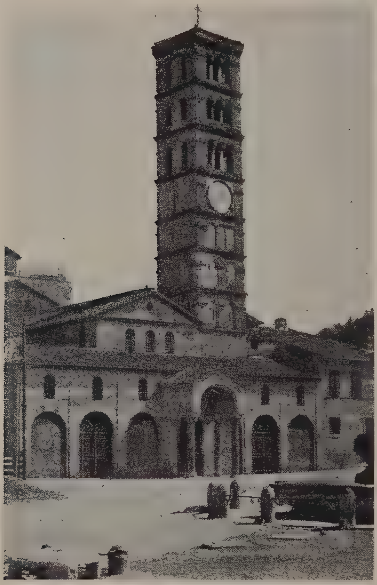
If, through want of money, good proportions for the church seem impossible of realization, all vestige of ornament should be cut off to secure this first essential of good architecture. Often those parts of our churches that are little seen—such as the elevations on side streets, alleys, backyards, etc.—look as though they were left to design themselves. The church should not be built with stone on the front and brick or some cheaper material on the sides and East end. There should be no such thing as a rear to a Catholic church. The alleys of our American cities are responsible for the hideous parts called "rear" on our buildings. It is wrong to spend a tremendous effort on the front, and neglect the other portions of the church exterior, as if there anything is good enough. The sanctuary end and the sides should be as well designed as the main façade.

Since the interior is the most important portion of the church, it is especially necessary to have good proportions there. Height is very desirable, and one thing that can aid us considerably to procure it is an open timber roof. A most objectionable custom in present-day church architecture is the fashion of setting up steel trusses covered with traceried wood in imitation of the magnificent timber trusses of the medieval English village churches. If one desires the effect of timber trusses, they should be of real timber, or else one should be content with well-designed steel trusses or a plain plaster or wood ceiling (which can be decorated) under the steel roof trusses. The encasing of steel trusses in wood is utterly bad architecture. When things of this sort are per-

(B. G. Goodhue, Architect.) PLATE 87

The West Front

ST. VINCENT FERRER'S CHURCH, NEW YORK CITY petrated, it seems to demonstrate that we have not progressed much from the days when plaster vaults with molded ribs were set up, containing the stone joints painted on in imitation of stone vaulting. The cost of solid timber roof trusses amounts to about the same as steel trusses incased in wood. Wood trusses with a horizontal lower cord for the flattish roofs of Romanesque, Byzantine, English Perpendicular, and similar types, are comparatively inexpensive, and they can be brought out effectively by the proper color decorations.

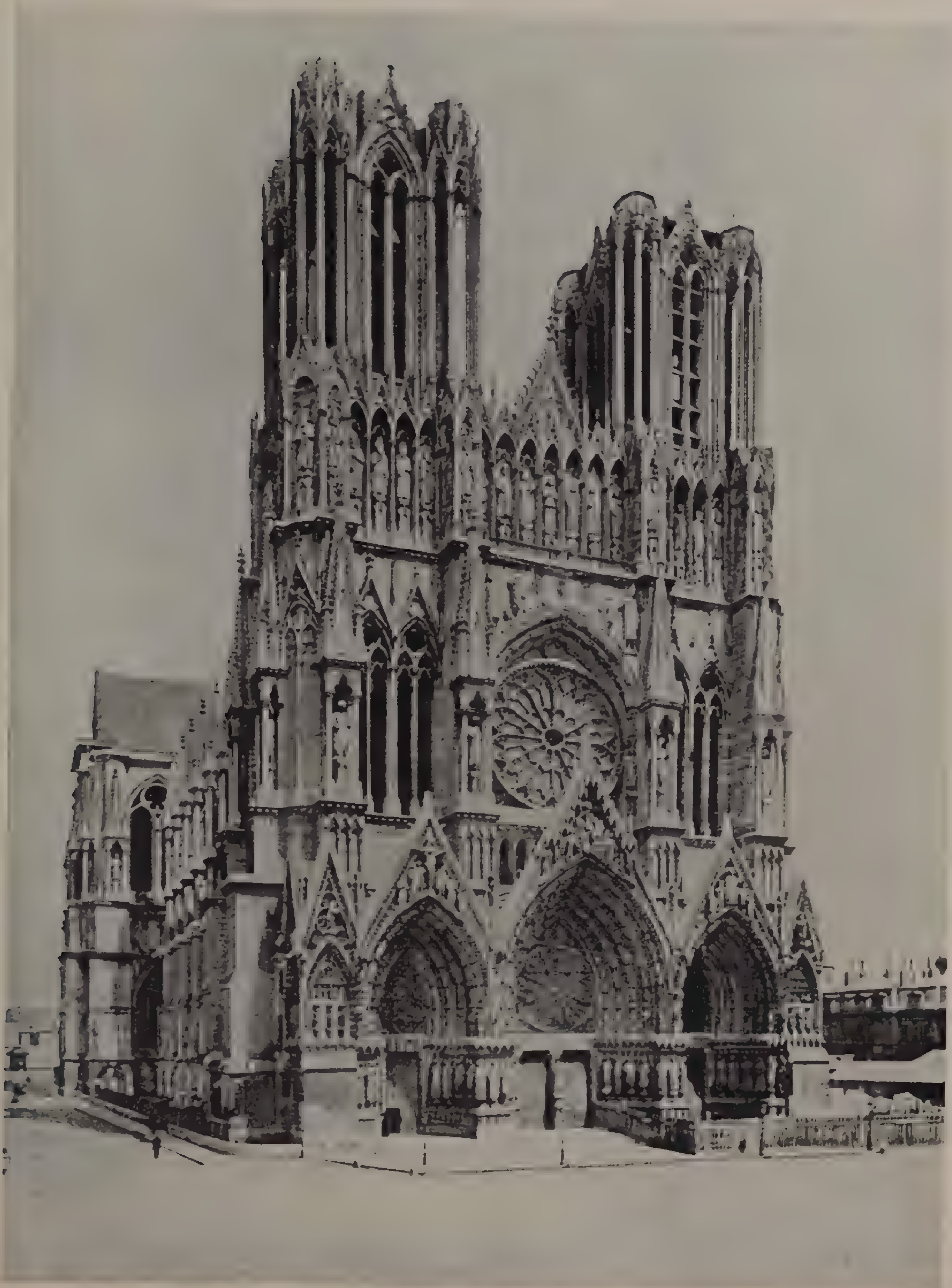


The Façade PLATE 88

CHURCH OF S. MARIA IN COSMEDIN, ROME

We are told that the Church of S. Maria in Cosmedin was erected in the sixth century, and that it was so beautified in the year 782 by Pope Hadrian I with stones taken from the Temple of Ceres that it was called Cosmedin (*kosmos* being the Greek for ornament). After the destruction wrought by the Normans in 1084, it was restored by Pope Callistus II (1119–1124). The last restoration took place within recent years, and as is customary now (in contrast to past ages) the church was restored in accordance with the spirit of its ancient architecture, and a very good result has been achieved. The entire exterior work, including the tower, is of brick.

Trusses can be spaced from 10 feet 8 inches to 16 feet apart, depending to a great extent upon the design of the fenestration and the positions of the columns in the building. It is economical to space the col-



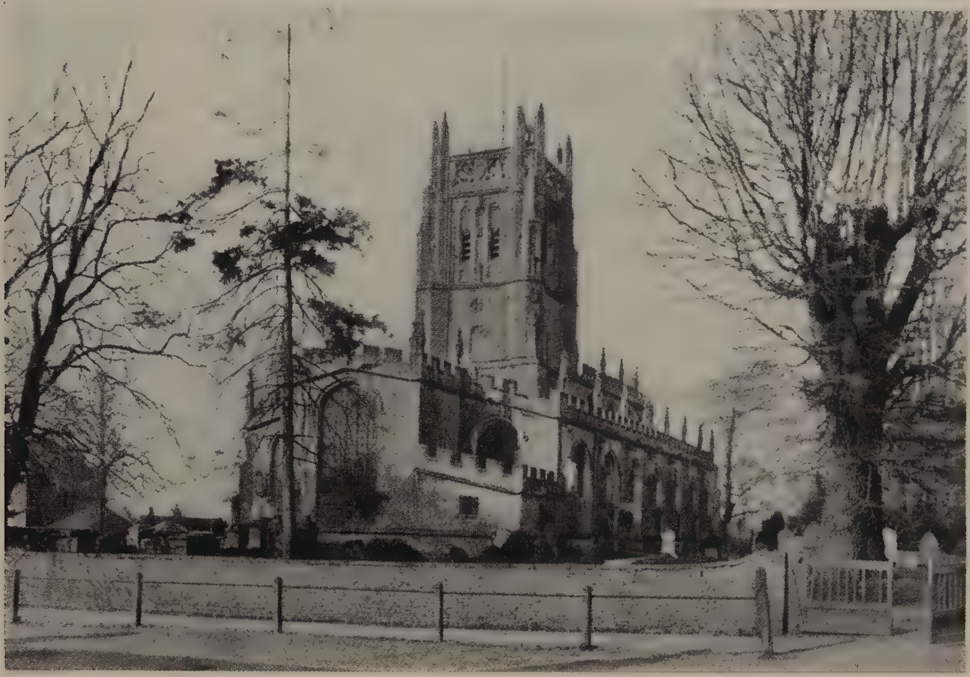
The West Front PLATE 89

CATHEDRAL OF RHEIMS, FRANCE

Rheims Cathedral was built between the years 1212 and 1241 in the style of the best period of Gothic architecture. It has a transept plan, and, while the aisles of the nave are single, those of the choir are double. There are five radiating chapels in the chevet. Five imposing towers were originally intended, but only the two on the front are built above the roofs: even these do not have their spires, although the beginnings of them can be detected in the picture, particularly on the Northern tower. This church was originally designed to be even larger and more magnificent, as the size of the foundations and the side aisle buttresses demonstrate. The West front is probably the grandest among the cathedrals of the world. Note the row of tall statues towards the top of the building. As in the Cathedral of Notre Dame, Paris, they represent the Kings of Judea, the Cathedral of Rheims also having been dedicated to Our Lady. The five gables of the entrance feature are unique, as are the rose windows under the arches of the doors. The Coronation of the Blessed Virgin is carved at the top of the gable over the middle door.

umns according to the pew spacings—thus, 10 feet 8 inches, 13 feet 4 inches, 16 feet, and so on.

Light trussed rafters can be built to form a barrel vault or a half-decagon ceiling. The finished ceiling fastened to these rafters can be made of wood panels or plaster. If a barrel vault is used, heavy tie beams of wood can be left exposed, provided they are treated in an artistic manner.

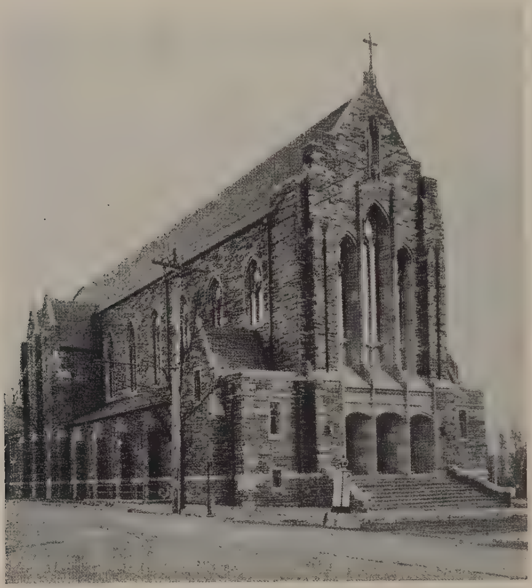


(Courtesy of "The Architectural Record.") PLATE 90

CHURCH AT FAIRFORD, ENGLAND

This church is an example of the Perpendicular Gothic style of England, which synchronized with the Flamboyant style of France. The picture shows a composition with clerestory and high aisles in the nave. There is a large square tower in front of the sanctuary arch, but no transept breaks the long line of buttresses and pinnacles. The choir walls are lower than those of the nave, and the walls of the choir aisle on the North side are extremely low. Characteristics of the Perpendicular style, noticeable in this building, are the gentle slope of the roof, the battlemented parapets on horizontal and raking walls, the high pinnacles above the parapets, the great square topped tower, and the four centered or Tudor arches of the great windows.

Lime plaster is best for acoustics. Plaster jambs should, in general, be used for all window and door openings; sloping plaster window sills may be used in the church, but wood, slate or tile sills are perhaps better in the sacristies and in the basement, unless they are sufficiently high above the floor. Occasionally, when a little more money is available, stone quoins can be used at the windows, and, if there are also stone columns and arches supporting the clerestory, about as much interior stone as one can expect is procured. On the inside of the building it is best, if possible, to have little or no wood trim.



(Courtesy of "The Architectural Record.") PLATE 91

(Frank R. Watson, Architect; Geo. E. Edkins and William Heyl Thompson, Associates.)

North-West View

ST. COLMAN'S CHURCH, ARDMORE, PA.

A small church is hardly likely to have the choir of singers located in the East end of the edifice in view of the expense of the extra cubage in the building and the elaborate furnishings needed in the choir. A high wood wainscoting in the sanctuary is sometimes desirable. It is well to have a richly decorated sanctuary; but for the rest of the edifice, unless the funds are plentiful, the congregation had better be content with plain-tinted plaster, having a few stencilled borders, etc., here and there in telling places.

The floors should be of rough slates, flagstones, or tiles in the aisles, but, if greater economy is required, terrazzo, composition, cement, or even wood can be substituted. Under the seats of inexpensive churches, it is hardly possible (although it looks well) to use the same materials as in the aisles, especially when the floor is laid on wooden joists. For this reason the floor should be preferably dark-stained oak under the seats. The narthex floor is generally of the same material as the aisles, although it can be a little more elaborate. The sanctuary floor may be of tiles with marble inserts and borders of unfading green slate. If this is too expensive, terrazzo or plain tiles with a few decorative inserts, etc., can be substituted. In the boys' sacristy a cement or composition floor is best on account of the danger of fire from burning charcoal, lighted candles, etc. The floor of the priest's sacristy should be of wood or composition. Wood floors are undesirable in the basement, as they are almost sure to rot in the course of time. Cement is the best material in basements, but only gravel cement should be used.

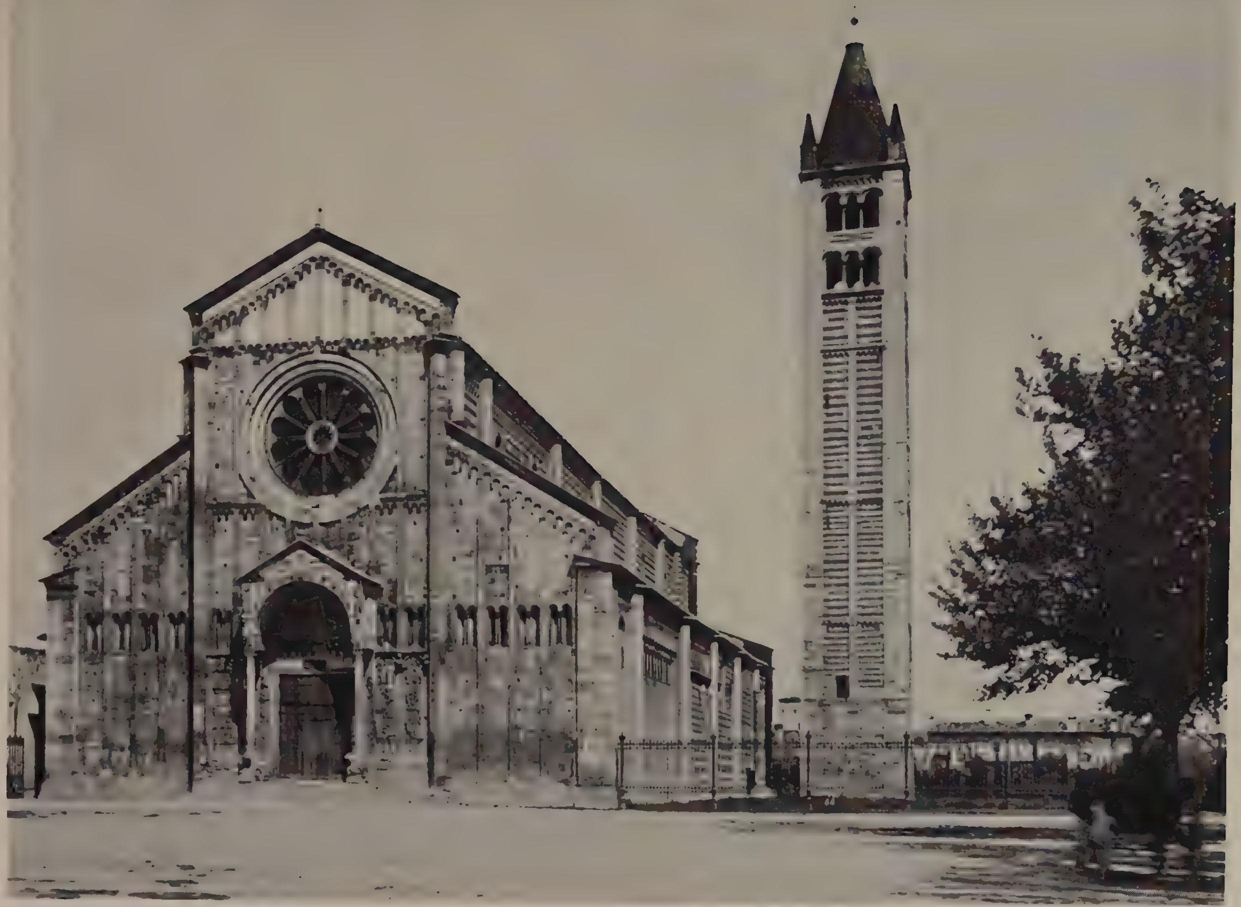
(Courtesy of "Architecture.") PLATE 92

ST. AMBROSE'S CHURCH, BROOKLYN, NEW YORK

(Geo. H. Streeton, Architect.)

The ready-cut frame mission churches (pictures of which may be seen in the advertisements published regularly in our Catholic weeklies) have nothing to commend them. They have uniformly a bleak and forlorn appearance, and in nearly all of them religious architectural expression is entirely neglected. Money could be saved if, instead of the customary huge group windows, small windows of at least an ecclesiastical proportion were used. There is no need of a schoolhouse fenestration in a church; and, furthermore, if the uncomely vestibule (which is usually applied to the front) were placed inside, another expense could be eliminated. Without doubt, these mission chapels could be far better designed, without being a whit more expensive.

One great reason for poor church architecture is the general dislike for small churches. People seem to imagine that a church must be big, if it is to be considered of any importance. This is, of course, an entirely wrong spirit; for it is not the size of a building that lends value, but the artistic quality which adapts it for divine worship. Despite its modest dimensions, the small church seating three hundred people, if built artistically, may be a truer expression of our religion and a finer incentive to piety than a church of twelve hundred sittings with transept and towers, if the latter church is badly designed, and with its style and construction not commensurate with its pretentiousness. Ruskin says: "The simplicity of a pastoral sanctuary is lovelier than the majesty of an urban temple." As a place set apart for prayerful worship, the smallest church in some rambling village of medieval England would put to shame the great majority of our large churches, for, in the churches of old, quality, not size, was the first consideration. Everything contained in these miniature gems of the Ages of Faith, down to altar-card and candlestick, was done with a feeling of reverence and a touch of genuine art. Small these churches might be, but, as they were destined to be the abode of the self-same Guest, their construction merited no less care and solicitude than the mightiest of cathedrals. This spirit explains the appealing charm of these little, unsophisticated churches. We feel that the faith of their builders was too deep to tolerate any shams or striving for effect in a House of God. Their churches are stamped with their matchless sincerity and love, for, while not incapable of it, their builders never thought of imitating a cathedral.



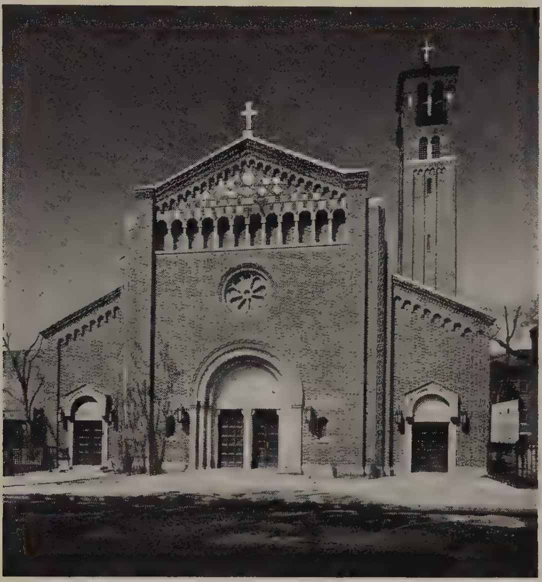
(Photo by Ewing Galloway, N. Y.) South-West View PLATE 93

CHURCH OF SAN ZENO, VERONA, ITALY

The Church of San Zeno dates from 1139. It is built in the Romanesque manner. The plan has a nave and two single aisles, separated by alternating compound piers and small round columns. Shafts from the compound piers are carried up to the top of the nave wall, as if it was originally intended to have a stone vault, but a trefoiled wooden ceiling is installed in its place. The caps on the clustered piers are plain, while those on the round columns are carved. The interior is of stone, but above the nave arcade are alternating horizontal bands of red brick and stone. The exterior is most simple in design and elegant in proportion, with just enough relief work to give it interest. The exterior masonry has taken on a beautiful, pinkish-yellow tone. The flat pilaster strips and arched corbel tables on the rakes of the roofs are characteristic of Italian Romanesque. The buttresses made of V-shaped pilasters are unique. The campanile at the right stands free of the church, like that of the Cathedral in Florence and other churches in Italy. The dark horizontal courses are of red brick, as are likewise the trimmings on the openings and on the cornice. The tower roof is cone-shaped and of red tile.

THE STYLE FOR CATHOLIC BUILDINGS IN GENERAL

In considering the style of architecture for a large or small church or any other ecclesiastical building, it must be borne in mind that the Catholic religion has its own art, and medieval art is the highest expression of the Catholic Faith. In looking about for inspiration, one should begin with the Early Christian and continue with the medieval styles. Churches in the High Renaissance style should not be used for inspiration for the reason that in them is revived the pagan architecture of the ancient Romans, and they are thus not adapted to give expression to the spirit of the religion which supplanted the paganism of Rome. Further, the High Renaissance style of architecture, with its applied or misapplied "orders," is a degradation of true art. To the Greek of ancient times the "orders" were the various methods of treating parts of a building—the pedestal, column and entablature, the latter being made up of beam, frieze and cornice; when all were treated in a harmony of proportion and spirit, the impression of order was given, and hence the name



(Robert J. Reiley, Architect.) PLATE 94

CHURCH OF OUR LADY OF SOLACE, CONEY ISLAND, BROOKLYN, N. Y.

"order." But when the "orders" are misapplied to churches, as they were in the High Renaissance style, anything but order results.

The architect is, fortunately, seldom required to change the styles of our church buildings, which will probably be inspired by the Early Christian, Byzantine, Romanesque, Gothic, or American Mission style. But let us hope that every building will be built with a certain originality and a personal touch, which of course will depend on the architect entirely.

There is a vast difference between the slavish copying of old buildings or old styles of architecture, and going to them for inspiration as advised here. To copy old buildings and old styles is not recommended, but shall we close our eyes to all that has gone before, and try to evolve something entirely new only for the sake of being original, especially when the "original" is often merely the bizarre and the uncouth? It is quite possible to lend our own modern or personal touch to buildings designed in the *spirit* of the Early Christian, Byzantine, Romanesque, Gothic or other styles, and one's imagination need not be stifled in the least. A Catholic atmosphere, practicability of plan, simplicity of composition, dignity of proportion, grandeur of silhouette, and harmony of scale, are the qualities towards which we should aim in all our churches.

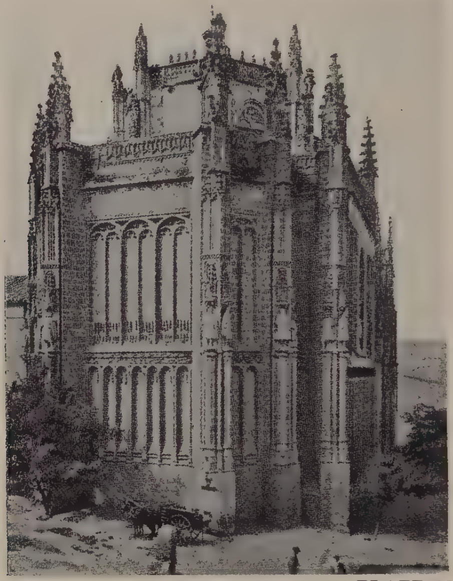
CHAPTER V

THE LARGE CHURCH

THE development of architecture and all the other ecclesiastical arts, whether they aimed at lending beauty of form or color to the churches or (like music) added to the sublimity of the worship, are to be traced to the solemn liturgy of the Church, which has exercised a decisive influence on the development of true beauty and culture since the time when the freedom of the Church was promulgated in the early part of the fourth century. The requirements for the proper administration of the sacraments and the preaching of the Gospel, and the demand for several altars (in addition to the high altar) on which to celebrate the Sacred Mysteries, determined the growth of the plan of the sacred edifice. Because of the unique importance of the Sacrifice of the Mass in Catholic worship, the high altar takes its place of prominence as the focal point in the House of God. The highest talents of man and the world's richest materials were enlisted to adorn the altar and sanctuary. Accommodations for the canonical choir—for the prelates, the canons, and the other clerics—were provided around the altar; while West of the altar the congregation gathered to attend the divine services and hear the sermons.

The large churches and cathedrals of medieval times had spacious naves, aisles of great length, high vaults, and many columns and arches. They were usually built thus, not only because they were thus more awe-inspiring, devotional, and magnificent, but also because they were best suited for preaching. These ancient buildings demonstrate that their builders understood that the best auditorium is one that is narrow, long and high, containing many columns and arches, and in the ceiling a multitude of vaults and ribs, or else open wooden trusses.

As the renting of pews in our churches is to a great extent now obsolete, there is no longer the objection that formerly was so common to an occasional seat behind a column. Worship in the church is of first and foremost importance. Hearing the sermon, prayers and chants, and seeing the service, is next in importance. For all of these requirements the type of plan in vogue during the Middle Ages remains the best to follow today, and we should have the greatest veneration for the architecture of our pious forefathers, which could only have developed among people in whose lives religion was of the utmost importance.

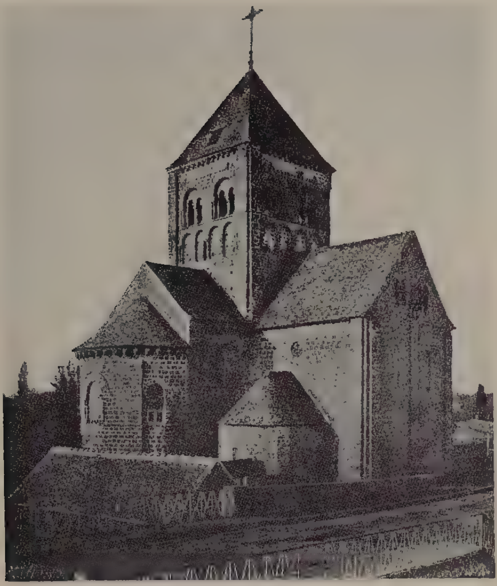


The Apse PLATE 95

CHURCH OF SAN JUAN DE LOS REYES, TOLEDO, SPAIN

In this attractive example of Spanish Late Gothic architecture, there is a marked absence of windows, the only one that can be detected being at the top of the *cimborio* on the right. The cusped panelling on the walls, the massive buttresses with their canopied statues and stalwart pinnacles, and the rich carved crestings, give to the apse of San Juan a tone unique even in Spain, a land noted for the splendor of its ecclesiastical monuments.

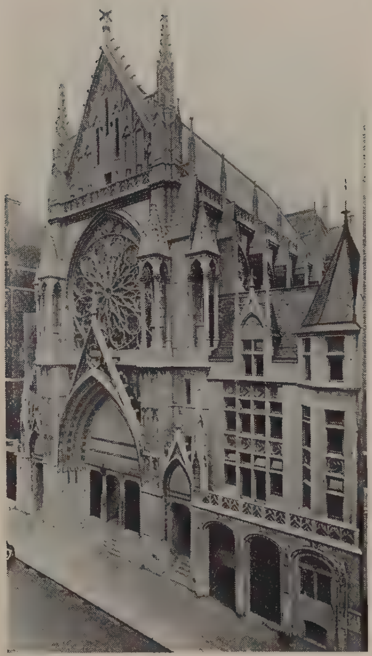
Obviously, much that was stated in the last chapter relative to the small church will also be applicable to the large church. A great many of the larger edifices will necessarily be built in crowded cities—some in tenement sections and others in thickly settled business and apartment house districts. More often than not, the property will be of dimensions not any too large, thus making it necessary to have the walls of the building placed right up to the street lines.



Apse and North Wing at Transept

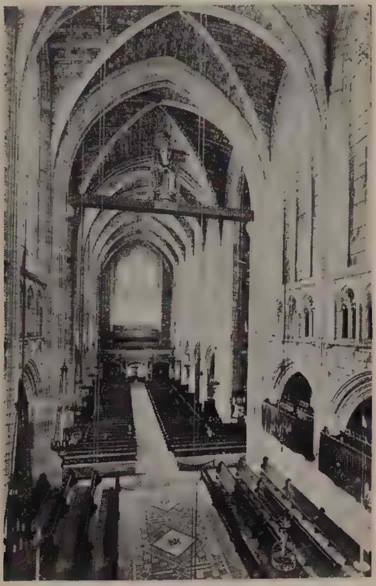
CHURCH OF NOTRE DAME SUR L'EAU, DOMFRONT, FRANCE

If the South wing of the transept and the nave of this church were completed, it would be a complete example of fine Romanesque French architecture.



(Gustave E. Steinback, Architect.)

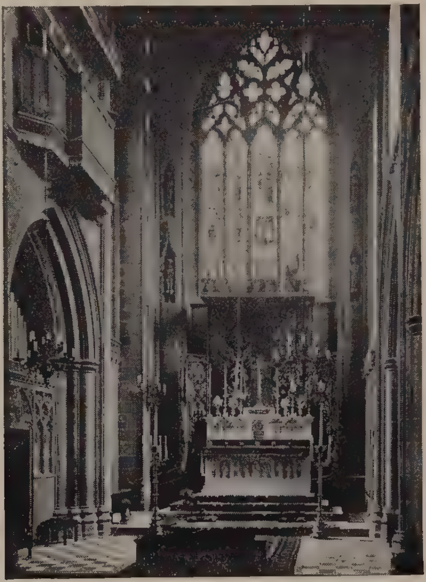
BLESSED SACRAMENT CHURCH AND RECTORY, NEW YORK CITY



Interior, taken from Sanctuary

ST. VINCENT FERRER'S CHURCH, NEW YORK CITY

(B. G. Goodhue, Architect.)

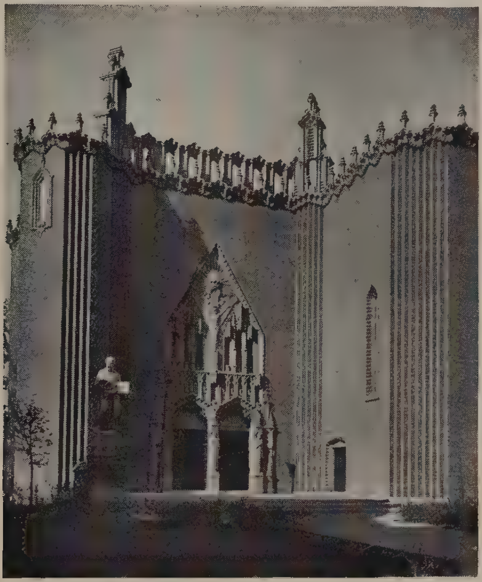


(G. F. Bodley, Architect.) PLATE 96

The Choir

ST. MARY'S CHURCH, CLUMBER, ENGLAND (MODERN)

Most of the medieval churches were built in towns with streets laid out in a very irregular manner; except in rare cases, the gridiron city plan was unknown at that time. Ample room was allowed around these buildings when they were erected, but time has permitted encroachments upon the original allotment of property so that we find some of the ancient churches today, especially on the Continent of Europe, with hardly any more ground surrounding them than we see around our churches in crowded American cites. In some English towns, however, great spaces still remain around the cathedrals, minsters and churches.



(Barry Byrne Company, Architects.) PLATE 97

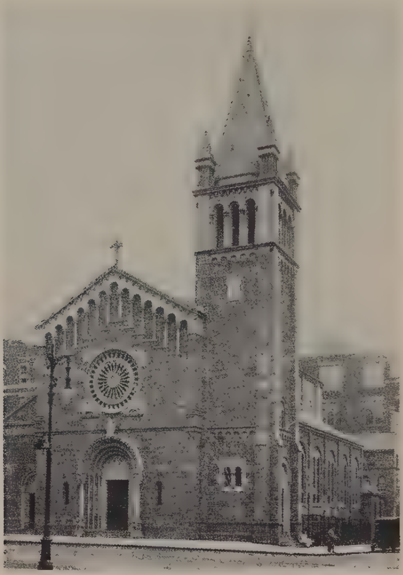
The Entrance

CHURCH OF ST. THOMAS THE APOSTLE, CHICAGO, ILL.

In medieval times the cities resembled the villages except as to size, and land, being more plentiful, was not so excessive in cost as we find it today. Commercial buildings and residences were never built very high—at least not in comparison with our city buildings. House upon house and building upon building, crowded together as closely as possible and built upon party walls, was a thing unknown, but open spaces for lawns, courts and vegetable gardens were the rule.

Similarly, the city church differed from the one in the village merely in size, and often it was originally only a village church, caught and encompassed by a fast-growing city. It thus retained essentially the same setting in a space surrounded by great lawns, trees and shrubbery, its size and picturesque setting making it the dominating edifice of the neighborhood.

A problem, to all intents and purposes unique in the world's history, exists for church architects in the many city churches being built today.



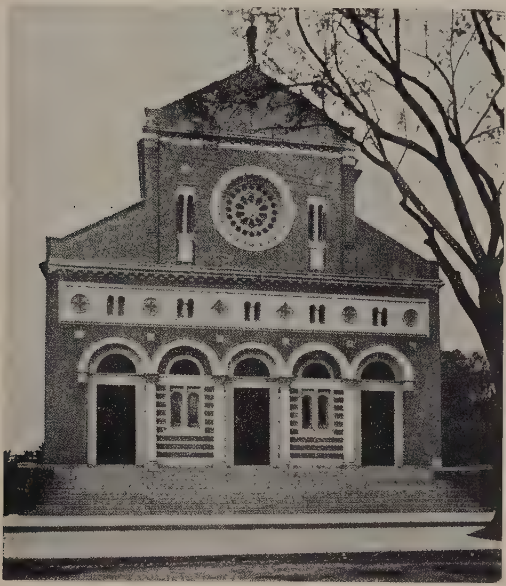
(Courtesy of "The Architectural Record.") PLATE 98

CHURCH OF ST. JOHN NEPOMUK, NEW YORK CITY

(John Van Pelt, Architect.)

It is only in cathedrals that the architect has an opportunity greater than in these large churches, and, when they are to be built in thickly congested districts, the architect has an opening to display a certain originality. It is in this very point that the church of today differs from that of centuries ago, although of course there is a demand for wider spans in the naves, for a greater open central space for the faithful just West of the altar rails, for modern heating plants, and so on. These innovations must be introduced without sacrificing the awe-inspiring and devotional effect of the edifice.

The large churches can be divided into three classes, depending upon where they are to be built: (1) those to be built in the heart of the down-town commercial or thickly populated districts of a large city, where, on account of the extraordinary appreciation of land values, the building has to be placed upon a restricted site; (2) those to be erected in the well-to-do or fairly well-to-do suburban districts of a large city; and (3) those to be built in the centers of small towns.



(Maginnis, Walsh and Sullivan, Architects.) PLATE 99

ST. JOHN'S CHURCH, CAMBRIDGE, MASS.

Obviously, the design in the first case must not be of the same type as that in the second; while the design for a church suitable for the third case can be a mean between that for the first and second types. Generally, in the second case the church may be nearly identical with those of past ages as to its proportions and character, while the church in the first case should be a little less rugged and may be more ornate than that in the second case. We must not forget that, if the commercial buildings surrounding the church, particularly in the first and third cases, are not now towering, it is not unlikely that the district will be invaded by tall buildings at some future time. In these instances precautions must be taken to forestall the unfortunate future dwarfing of the building.

As it is of first importance that the church should be the outstanding edifice in the neighborhood, it must lift its walls high to imposing proportions. It must bespeak simplicity itself in its design, and its divisions should not be numerous. By its dignity it must command the respect of its towering neighbors. Soaring walls, and a dignified and simple composition, will be required in the city church, if it is designed to fit the surroundings. The low walls of the small church for the coun-

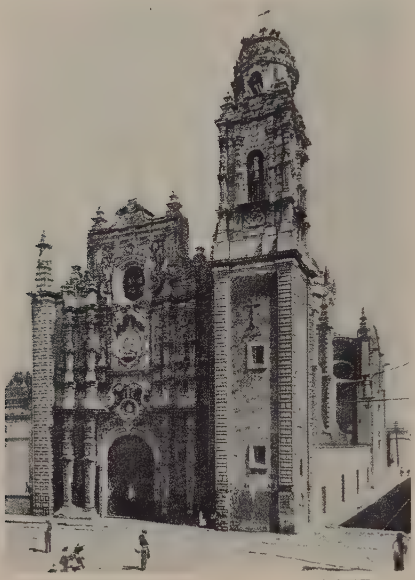


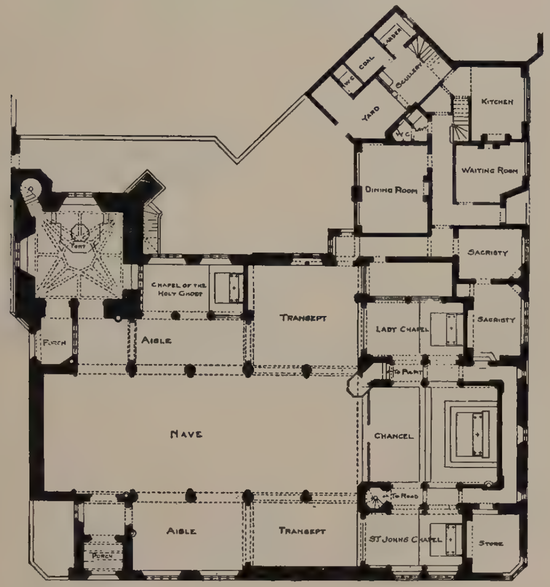
PLATE 100

CHURCH OF LA SANTISIMA, MEXICO CITY

Here is a genuine example of the Churrigueresque style. There is no gainsaying the picturesque charm of such architecture, the quality of which proves that the early missionaries on American soil must have spared no pains in their attempts to raise magnificent places of worship to the honor and glory of God. The silhouette is striking, and the artist shows his ability to achieve results by placing side by side the most fanciful exuberance and the extreme of plainness. Speaking of sculptural color as differentiated from the colors of the painters' palette, there are four colors on this building, as follows: (1) the white of the plain walls; (2) the light grey of the blocks or quoins on the tower corners and on the pier at the left; (3) the dark grey of the Churrigueresque ornaments above the plain shaft of the tower and on the central motif of the front; and (4) the black of the window and door openings.

tryside must not be used for the city church, and it is inadvisable to resort to the crouching, ground-hugging aspect and low apex often appropriate for the country chapel.

If towers or domes are used, they must also rise to great heights, and impressive proportions should be found throughout. In the suburbs of large cities where more ground is available, the façade of the edifice as in the olden days should be kept back from the street lines, even where there are no restrictions.



(J. F. Bentley, Architect.) PLATE 101

Ground Plan

HOLY ROOD CHURCH, WATFORD,
ENGLAND

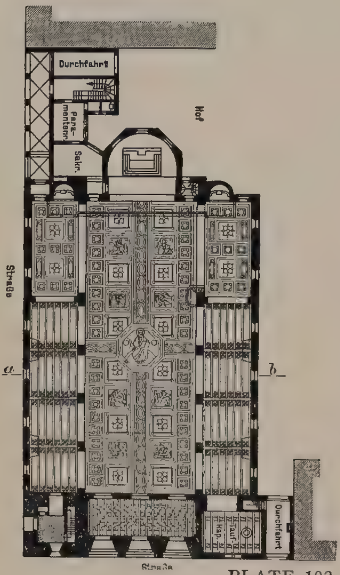


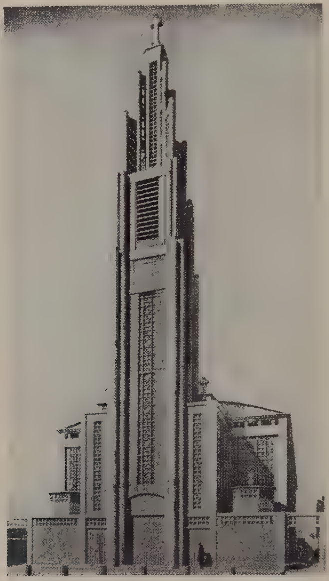
PLATE 102

Ground Plan

CHURCH IN HÖCHST-AM-MAIN,
GERMANY (MODERN)

Where the church is to be set among skyscrapers, the opportunity to break with the past presents itself. A nave of moderate height is out of place, even if an imposing tower is added. Height must be supreme, if success is to be assured. If sufficient funds are not on hand to erect a tower of imposing proportions, it is advisable to devote the available money to increasing the height of the nave and aisle walls. There are examples of churches which have been erected without towers or domes, and yet produce upon the spectator the effect of sublimity and power. For churches which are to be built among skyscrapers, one is forced to make use of every inch of available ground area on account of the small size of the property usually at one's disposal.

The extraordinary surroundings of our big cities are modern. As the church must be a part of its neighborhood, its design will have to be adjusted accordingly. Small motifs and small towers and such things, while well and appropriate enough in the country, become ludicrous when placed on the city church.



(Courtesy of "The Architectural Record.") PLATE 103

The West Front

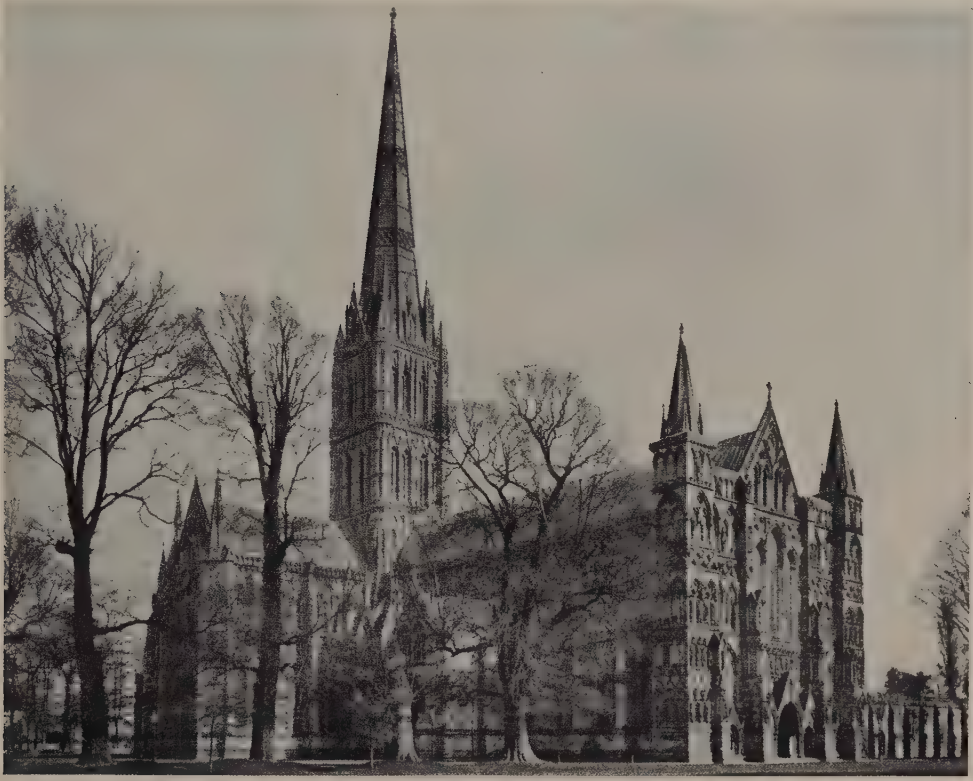
NOTRE DAME CHURCH, LE RAINCY, FRANCE (MODERN)

Built entirely of exposed reinforced concrete.

(A. and G. Perret, Architects.)

While it is true that all architecture should be powerful, yet the following passage of Ruskin is perhaps more applicable to the church crowded in by big buildings than to the small church in the suburbs: "I do not believe that ever any building was truly great, unless it had mighty masses, vigorous and deep, of shadow mingled with its surface.

And among the habits that a young architect should learn, is that of thinking in shadow, not looking at a design in its miserable liny skeleton; but conceiving it as it will be when the dawn lights it, and the dusk leaves it; when its stones will be hot and its crannies cool; when the lizards will bask on the one, and the birds build in the other. . . . All the architect has to do, must be done by spaces of light and darkness; and his business is to see that the one is broad and bold enough not to be swallowed up by



North-West View PLATE 104

SALISBURY CATHEDRAL, ENGLAND

What Amiens Cathedral is to French Gothic, Salisbury Cathedral is to English. The building is placed on a level terrain, and is surrounded by the green lawns of a spacious "close." The great elm trees are magnificent. English cathedrals differ in great measure from Continental ones in their settings, as many have, like Salisbury, ample open space around them, while the Continental cathedrals are usually crowded in by casual buildings. Salisbury is built almost completely in the Early English Gothic style (1220–1258). It has two transepts, and the central tower with its Decorated spire rises 404 feet above the ground, which makes it the highest spire in England. The fine North porch, placed in the center of the nave, is two stories high, is vaulted, and projects about 40 feet beyond the building.

twilight, and the other deep enough not to be dried like a shallow pool by a noonday sun" ("Lamp of Power" in "Seven Lamps of Architecture").

In the essential features of its plan, the large church of whatever category is not different from the small one. Composition and proportion in planning are necessary in any church. Also the precedents for style cannot be diverged from. There will be no opportunity for wasting space, because the property is restricted in size. Being placed in more prosperous districts, the large church will often have wealthier congregations, and can thus attain a grandeur and magnificence second only to that of a cathedral. Refinement of detail can then be utilized, and delicacy in the finish of materials will be appropriate. Smooth stone will be more correct than rubble work, but, if brick is used, the advice given for the small church in the last chapter should be followed. Reserve

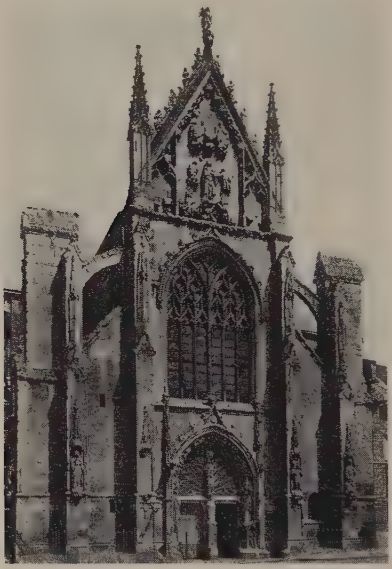


PLATE 105

CHURCH OF ST. REMY, RHEIMS, FRANCE

This picture is shown as an example of a church which has elevated proportions, though at the same time treated in a very simple Gothic manner. That all of the central wall between the buttresses is pretty much on the same vertical plane, is worthy of note. The proportions are splendid, while the unusual height of the gable above the great window is admirably relieved by the fine group of sculptured figures, tracery, etc. Flamboyant traceries are to be seen in the great window.

and formality are here in order, in contrast to the joy and gladness of the tiny countryside church. As Anne Hathaway's thatched cottage would be unseemly on Fifth Avenue, New York City, so care must be exercised not to obtrude the small country church on the stately avenues of a great city. The country cot and the city mansion alike form human domiciles. The little chapel of the country is as truly God's House as the basilica's towering mass. But a certain adaptation to the surroundings is proper in both cases. The fact that the large church may aim at elegance and glory, must not be taken to mean that tinselly and theatrical effects can be tolerated. Any wealth of ornament is permissible, when the work is real and does not savor of insincere ostentation.

In the large church the art of the stone or wood carver, painter, goldsmith, tile-maker, stained-glass worker, tapestry-maker and limner can be requisitioned to any extent within the means of the parish. However, the work must be well-designed and honest, and it must be executed in the correct technique, and should, of course, have an architectural background that is good, massive, and without pretentiousness. The greater the synthetic harmony of the architectural lines and the grander the proportions, the more magnificent become the decorative adjuncts.

More than ample should be the divisions of the plan throughout. It is hardly advisable to have a real transept, for it is perhaps only in a church of cathedral magnitude that this adjunct can be made successful. However, a widening out effect in front of the sanctuary can be obtained by having two of the aisle arches rise higher than the others, and then have them cutting into the clerestory. This produces a lofty ceiling in front of the side chapels without breaking the continuity of the line of the nave roof. The exterior of such a scheme is treated so that two

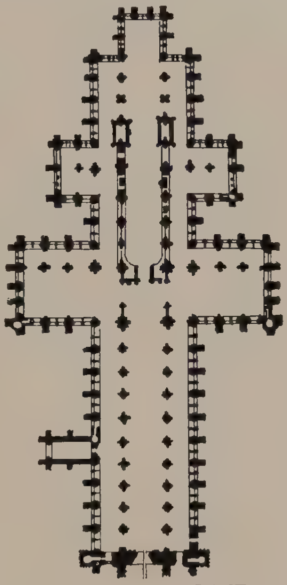


PLATE 106

Plan

CATHEDRAL OF SALISBURY, ENGLAND

This is a type of plan having two transepts. Other English cathedrals besides Salisbury have this trait, among them being Canterbury (Plate 145), Rochester, Lincoln, Worcester, and Hereford. Churches with two transepts are unknown outside England.

gables are formed on the outside (instead of one as in a real transept), their roofs being kept below the nave roof.

To each and every part a certain amplitude must be extended. The spacings of pillars, the heights of arches, the chapels, the baptistery, the sacristies, the narthex, the vestibules, and in fact everything including the exterior, must be brought up in scale, which means that the scale must be more heroic than in the small church.

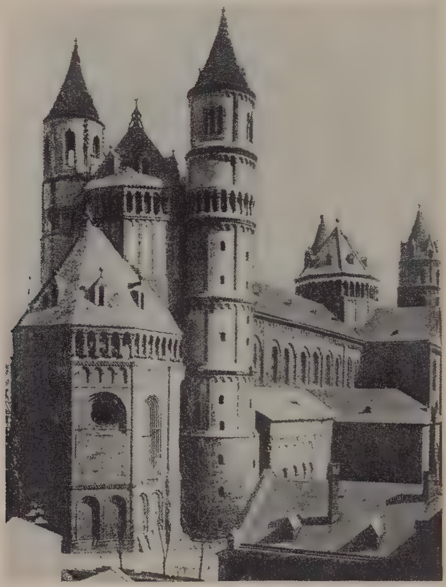


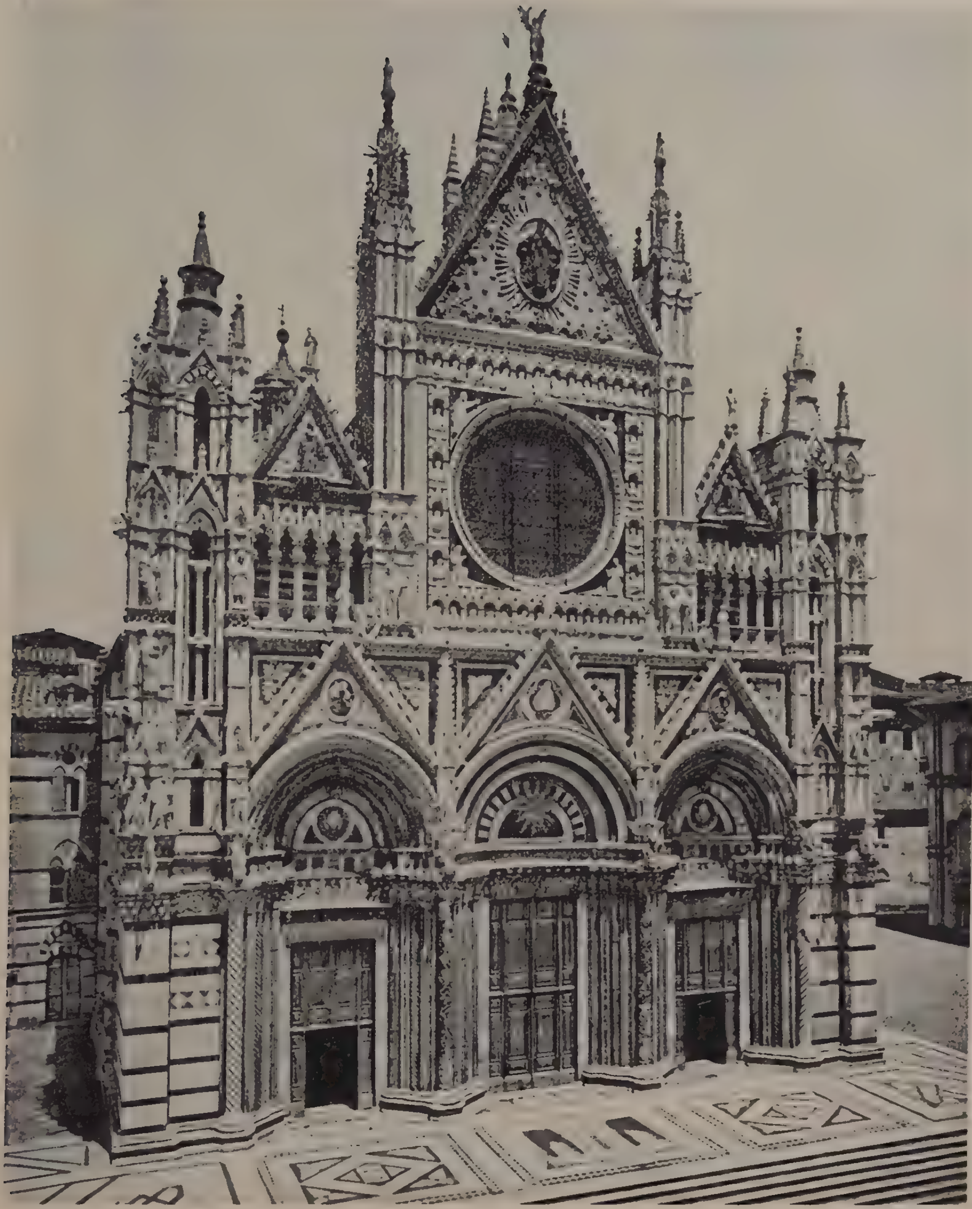
PLATE 107

CATHEDRAL OF WORMS, GERMANY

This cathedral is an excellent example of the Romanesque style in which the inhabitants of the Rhine Valley so excelled. It dates from 1110–1200. This church is planned with both an Eastern and a Western apse, examples of this scheme being but rarely met with outside Germany.

The fussiness of a design calling for many features, breaks, projections, oddities of roof construction and so on, will be even more objectionable in the city in the neighborhood of tall and dominating buildings than in the country. In general, most of what was written in the way of suggestions and criticisms for details and materials in the last chapter applies equally well here, and need not be repeated.

The large church, in all probability, should be expected to accommodate between eight hundred and fifteen hundred people. Beyond that



The West Front PLATE 108

CATHEDRAL OF SIENA, ITALY

The Cathedral of Siena (1245–1380) boasts a West front which for magnificence of color is far superior to the façades of all French, English, and German Gothic cathedrals. The northern cathedrals are all built of stone of more or less uniform color, while Siena has marble of black, red, and white, together with mosaic to give it even more color. The absence of tracery in the rose window is singular, and a magnificent mosaic floor like that on the exterior front terrace is a rarity even in Italy. This cathedral has a low dome over the crossing and a tall campanile striped with alternating dark and light marble bands. With a late afternoon sun beaming upon it, the front presents a sight not easily surpassed.

size we are getting into the cathedral class, as it is hardly likely that a church of less than cathedral magnitude will have more than fifteen hundred sittings. The medium-sized church will obviously be situated in a position between the small church treated in the fourth chapter and the large church as outlined above. Dimensions for pews are identical in all churches, but the widths of the pew aisles in the large church should be more ample—say about 6 or 7 feet for the center aisle, while 5 feet for the side aisles will be sufficient (if there are pews on both sides). A little less can be used if the aisle is against the wall.

I would suggest that toilet facilities for the parishioners (whether in the front of the church or anywhere else for that matter) be omitted entirely, while admitting that it is sometimes very desirable to have these facilities around the sacristies and the committee room; the latter might be in the basement. If it is felt absolutely necessary to have these conveniences for the parishioners in the front of the church, without doubt they should be kept in the basement.

In the case of large churches sufficient funds are sometimes available for the construction of stone vaulted ceilings in the nave or aisles. It is now generally customary to build these of stone ribs or arches, with acoustic tile fillings in between.

If the style and design of the building permit, the windows can be very large, with fine traceries, and with extra funds at hand a stained-glass contract of magnitude can be considered.

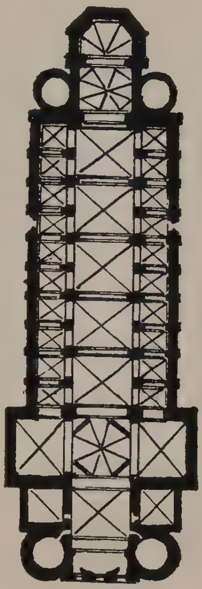


PLATE 109

Plan

CATHEDRAL OF WORMS, GERMANY
(Plate 107)

This plan shows a church with apses at both ends. Of this type there are several fine examples in Germany.

A decorator of ability should be employed to devote his talents to the adornment of God's Temple. Mosaics and frescoes may be used to adorn the vaults, and rich floors are appropriate, especially for the sanctuary.

The Catholic Church is today as much as ever a living organism. We must put the vital touch of today into our churches, while taking inspiration from the work of ancient days. Real coördination must exist between the allied artists who are working on the building. Each art must contribute the technique appropriate to the material in hand.

Since our churches should have an historic connection with the past, the Catholic architect must study the past architecture and the great monuments and styles, seeing wherein they are great compared to our own. Into this framework of bygone architecture, let us breathe a new message with a renaissance of modern art. With our new methods of construction, the ancient styles will pulse again with fresh life brought forth by the thought and study of our modern architects.

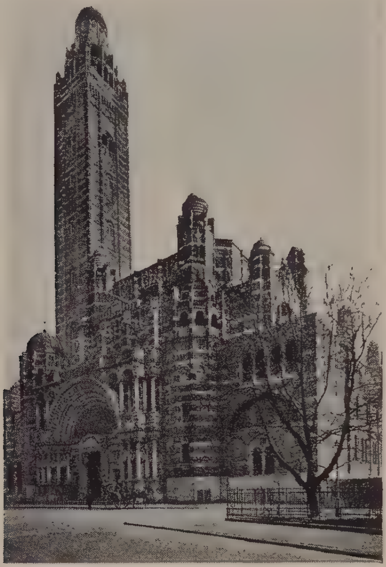
CHAPTER VI

THE CATHEDRAL

A CATHEDRAL is the principal church of the diocese, and contains the seat or throne of the bishop (*cathedra*). In early Christian times the bishop's chair was placed at the back and in the center of the semicircular apse, East of the altar. In the pagan Roman basilicas or halls of justice, after which our early Christian churches were patterned, the seat of the judge was in this same position, and his counselors were ranged to his right and left, following the curve of the semicircular apse wall. In like manner, the stalls of the canons were ranged in the apse of the church at each side of the bishop. The altar placed in front of the bishop's throne was generally above a martyr's tomb, from which follows the custom of celebrating the Sacrifice of the Mass over the relics of a martyr. At this early age, the bishop celebrated Mass from the back of the altar, facing the faithful, and the altar was always a plain table-top, without candlesteps or reredos or tabernacle. All could see the bishop when he was seated, not only because the altar was devoid of the above-noted objects, but also because his throne was raised on several steps.

This disposition of the *cathedra* at the back of the apse can still be seen in the Basilicas of St. Clement and St. Lawrence in Rome and in the Cathedrals of Augsburg and Torcello (Plate 190). From the twelfth century it became customary to use a reredos on the altar (at least on festival days), and the custom of having the throne in the apse fell into disuse. Today the bishop's throne is placed in the sanctuary against the North wall, and the pulpit is placed on the Epistle side of the church, instead of on the Gospel side as in churches other than cathedrals. In ancient times, when a bishop was invited to visit a monastery, a temporary throne was placed at the back of the apse, whereby the abbey church was transformed into a cathedral for the time. In ancient days the cathedral was not only a church, but it was also a sort of sacred tribunal for settling civil affairs. The episcopal chair is the symbol of the bishop's jurisdiction.

The placing of the seat of the bishop in a church makes that particular church a cathedral in fact, but it should be in addition a cathedral in spirit—that is, it should be built like a cathedral, and have the size, grandeur and awe-inspiring quality that are usually associated with a cathedral. Taking an ordinary parish church or even an extraordinarily fine one and placing therein the *cathedra,* will not fulfill the ideal of a cathedral.



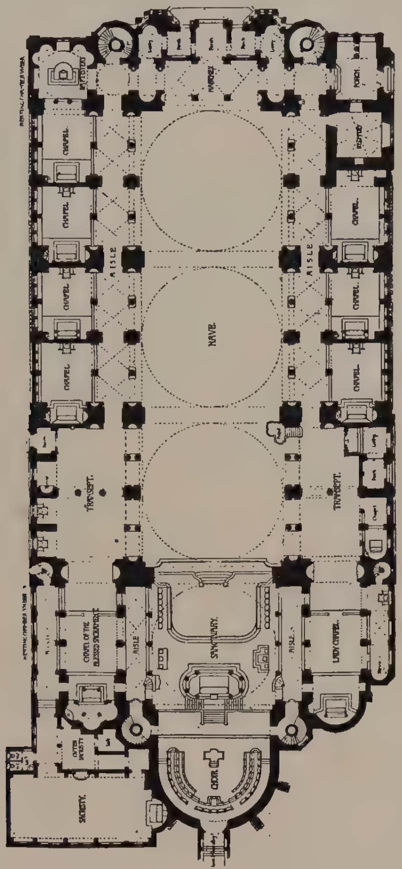
(J. F. Bentley, Architect.) PLATE 110

South-West View

WESTMINSTER CATHEDRAL, LONDON, ENGLAND (MODERN)

This cathedral is built of brick, and is inspired by the Byzantine and Romanesque architecture of Italy.

When the word "cathedral" is mentioned, what do we generally picture to ourselves? Certainly something differing immeasurably from a parish church. Is not the picture composed somewhat of the following elements: vast naves, awesome soaring vaults lost in mystery and shadow, a profusion of massive pillars and arcades, and a radiating apse with many splendid chapels? Disposed throughout the building are other

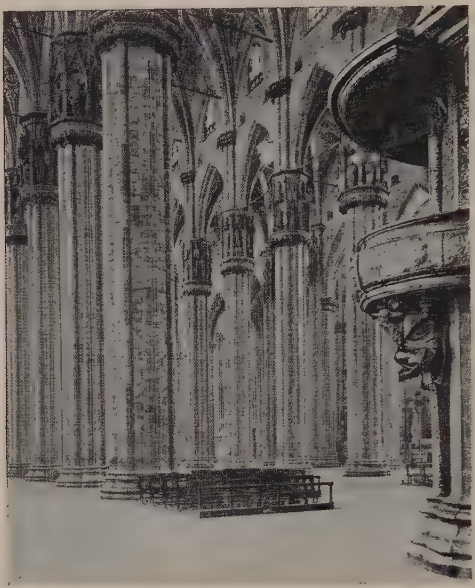


(J. F. Bentley, Architect.) PLATE 111

WESTMINSTER CATHEDRAL, LONDON, ENGLAND

The style of this magnificent structure is a modern interpretation of Byzantine work. Three large domes in the nave, one large dome in the choir and sanctuary, and a large semi-dome in the apse, cover the central portion of the building. The choir for singers is contained in the apse, East of the high altar. The entire interior will eventually be covered with marble and mosaics like St. Mark's, Venice. The tower is on the order of a tall campanile, and is situated on the North side of the church, quite close to the front. The exterior is of brick.

chapels, but the chief of all is the exquisite Lady Chapel, terminating the East end of the structure. Contained in the picture are also a baptistery of grandeur and magnificence, a spacious choir containing rich stalls, and a sanctuary of great depth in which is placed a vast altar bedecked with jeweled tabernacle and great candlesticks. Gilded organ cases are hung high on the walls, and a huge rood of glorious hue suspended from the sanctuary arch seems lost in clouds of incense. To complete the effect of the interior are required a gorgeous spot of color (the red of a Cardinal or the purple of a Bishop), the chant of the men and boys of the choir, the deep tones of the organ, a lovely aroma of incense, and an array of wax candles.

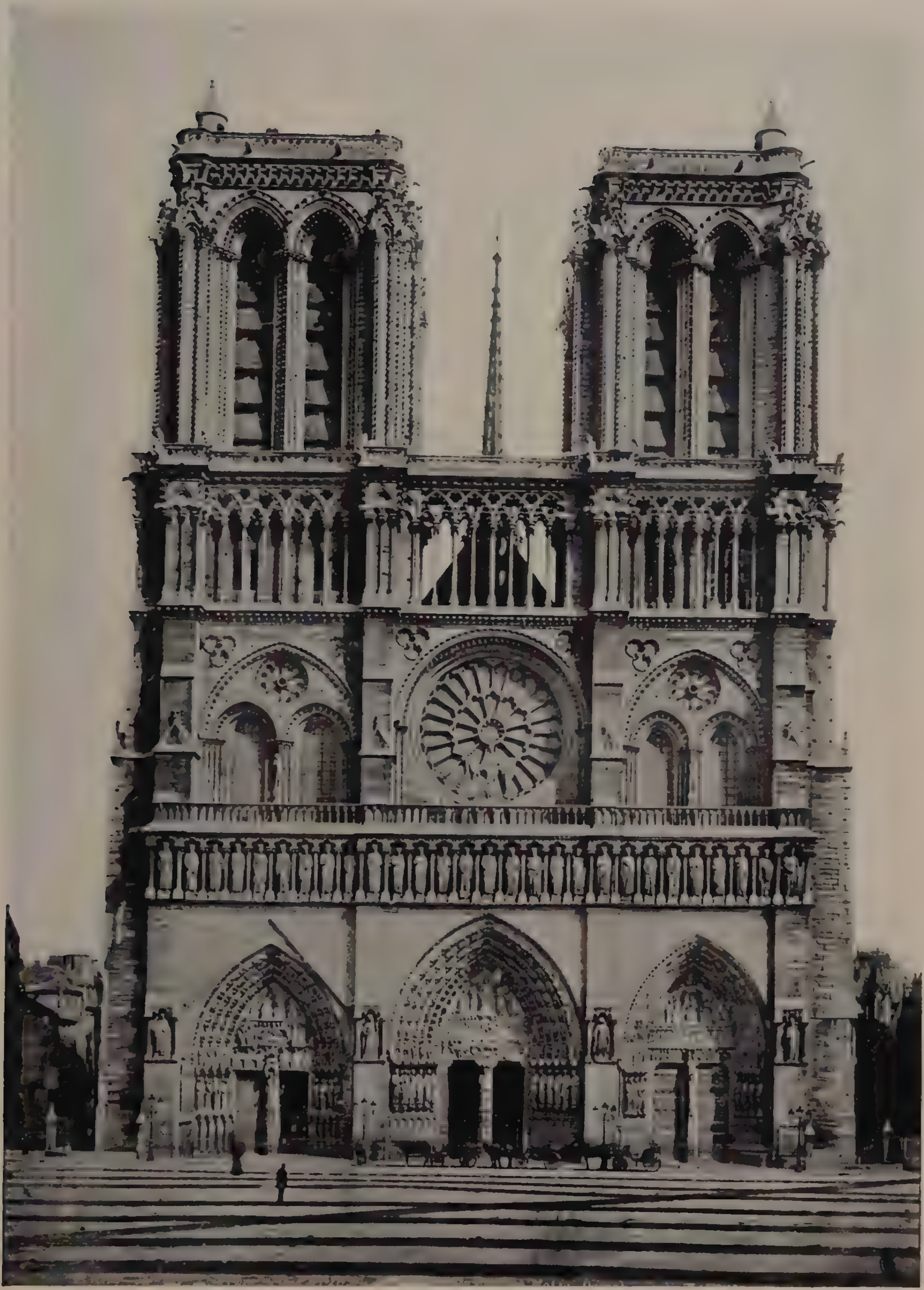


The Interior PLATE 112

CATHEDRAL OF MILAN, ITALY

Compared with Amiens Cathedral, the clerestory windows of Milan (Plate 66) are all very small. The piers shown in this picture are 60 feet high, and the huge capitals measure 20 additional feet. Milan Cathedral was built between 1385 and 1485.

For the exterior we visualize the garth with its calvary, and the ivy-mantled cloisters connecting the various dependent buildings which stretch endlessly in different directions to blend softly with the earth, the towering bulk of the huge nave and choir with their accompanying towers, transepts, chapels, and porches, the latter literally carved sermons in stone.



The West Front PLATE 113

CATHEDRAL OF NOTRE DAME, PARIS, FRANCE

This cathedral, built between 1163 and 1235, is one of the oldest and most majestic of French Gothic works, and the greater part of it forms a good example of Early Gothic. The plan East of the crossing bends on its main axis towards the North to symbolize the drooping of the head of Christ on the Cross. It has double aisles and side chapels for the nave, and a double ambulatory and radiating chapels for the choir. The West front, no doubt, served as a model for many Gothic Cathedrals of later date. The removal of the flight of steps originally in front of the portals takes from the building some of its dignity. Unlike Burgos, Chartres, Cologne and other cathedrals, the Western towers are without their spires or steeples. The range of statues over the Western portals represent the Kings of Judea, the ancestors of Our Lady.

We further associate with the word "cathedral" a certain rising quality, mounting ever higher and higher while becoming daintier and daintier in the towers, domes and spires. Try as we will, we cannot dissociate this uplifting movement from our ideal cathedral. In our mind's eye do we not see the sky at times black with the rooks that nest in the manifold crevices of pinnacle and buttress, imagining the while that we hear the thundering voice of the huge deep-toned bells and the dainty notes of the chimes?

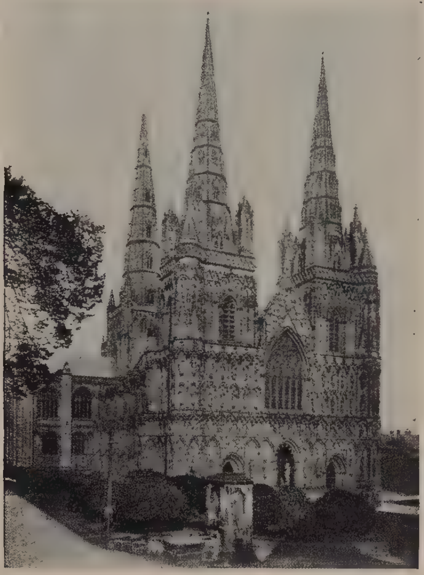


PLATE 114

North-West View

CATHEDRAL OF LICHFIELD, ENGLAND

Like some of the rock-cut tombs of India and Syria, the West front of Lichfield Cathedral has the appearance of having been carved out of the solid. It is the only English cathedral that has its three towers finished off with stone spires. The building is built of red stone. The nave, transept, chapter house and West front are in the Early English or thirteenth-century style, while the three spires were built during the Decorated period of the fourteenth century. Lichfield is small, but because of its richness, its beauty of proportion and silhouette, and the generally complete and finished aspect of the whole, it is called the "Queen of English Minsters."

It was the twelfth century that saw the rise of the great European cathedrals of grand dimensions, for until then some of the abbey groups contained the largest churches in Christendom. During the last quarter of the twelfth century and the first three-quarters of the thirteenth, eighty cathedrals, besides about five hundred other churches of nearly cathedral magnitude, were built in France alone. The followers of William the Conqueror entered on a vast building program in England, the results of which survive today in numerous edifices, and Germany, Spain, Italy and other countries did not lag far behind. A great many cathedrals resulted from the wonderful religious enthusiasm of the people of this period, as evidenced by documents that have come down to us.[1] This enthusiasm led thousands of men, women and children, both rich and poor alike, to harness themselves to carts loaded with columns, beams, timbers, and heavy stone for use in the buildings. To enjoy the spiritual fruits of the occasion, the faithful were all required to fulfill three conditions: confession with contrition, the putting away of all vengefulness, and the humble following of their leaders. Many miracles took place, and numbers of the sick that came with the people were sent away cured.

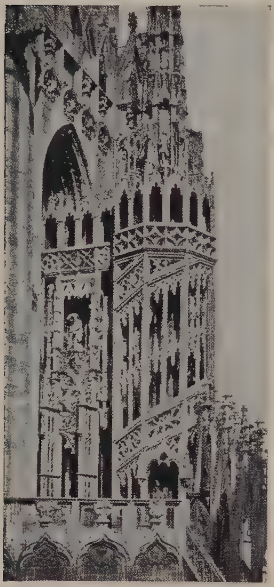


PLATE 115

Stair Turret on Crossing Tower

CATHEDRAL OF MILAN, ITALY

Tennyson has described the Cathedral of Milan as "a mount of marble, a hundred spires." This picture shows the crossing tower staircase of open-work marble, all designed in a mounting mass of intricate lacy traceries, pinnacles, curvings, and statues.

In those days the architect was styled *maître d'œuvre,* or "master builder." He traveled from place to place, remaining only where he could procure work, but in some cases his entire lifetime was spent on one cathedral. William of Sens of France traveled to England, and secured the commission to design Canterbury Cathedral (Plate 145), after it had been burned in 1174. There he labored for many years, and finally fell from a scaffolding, injuring himself so severely that afterwards he had to direct the work from his bed. Villard de Honnecourt, the architect of the Cathedral of Cambrai (thirteenth century), traveled extensively, as can be demonstrated by the sketch book containing drawings by his own hand which has come down to us. This book contains drawings of portions of Chartres (Plate 25), Rheims (Plate 89), Laon (Plate 121), and other cathedrals, besides numerous sketches of birds and animals. The latter drawings demonstrate that in all probability his labors took the form of sculpture as well as architecture.

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[1] Chief among them are the letters written by Abbot Suger of St. Denis and Abbot Haymo of St. Pierre-sur-Dives, Normandy.

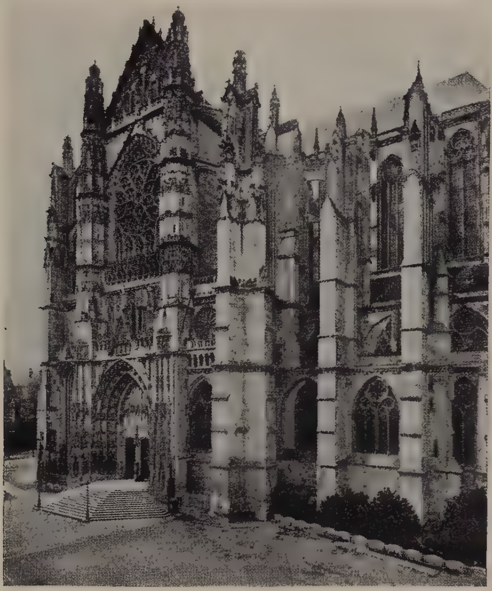


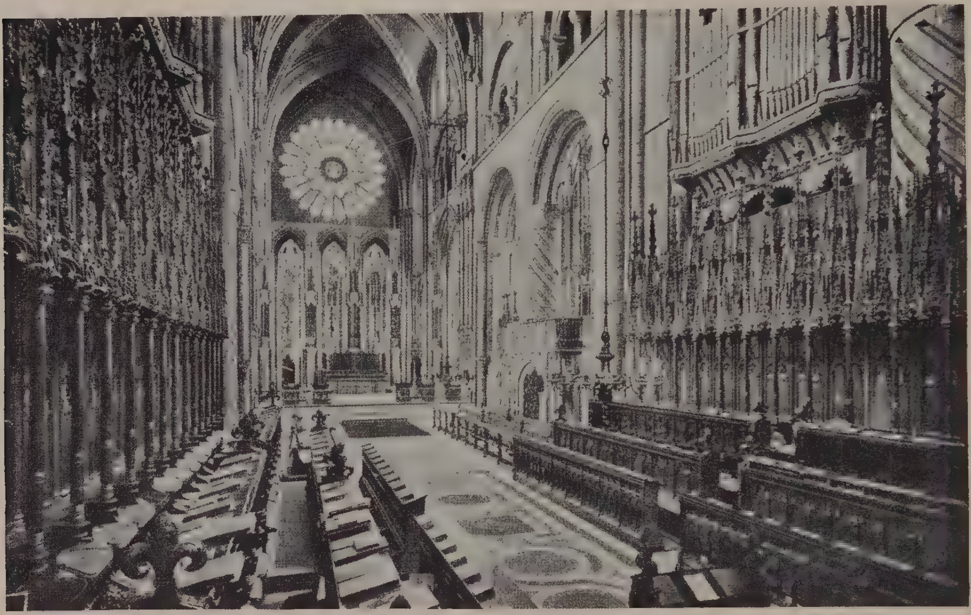
PLATE 116

South-East View

CATHEDRAL OF BEAUVAIS, FRANCE

Beauvais Cathedral consists only of the choir and transept with their aisles. It dates from 1225–1568. As far as it has been completed, it is the most ambitious project of all the Gothic cathedrals, and the vaults are the highest of any church in the world (157½ feet). The choir has a radiating chevet of seven chapels of similar form and dimensions. The nave was never built, although the church once had a tower over the crossing that rose 500 feet in height. On Ascension Day, 1573, only five years after its completion, the tower fell while the solemn procession of clergy and people were traversing the streets in another part of the town. Some authorities say that the tower failed owing to the fact that there was no nave on the West to brace it. However that may be, the structure has been through many vicissitudes, and even now is only held together by numerous braces and bands of iron. The builders, however, went too far and evidently forgot themselves in their eagerness to elevate their arches and soar their pillars.

The architect in those days was paid, like other men working on the building, a stipulated salary. In return his duties were among other things to make the plans. These were very simple compared with our elaborate drawings of today, which show and specify everything (no matter how small) from entrance to apse, and from the cross of the highest pinnacle to the bottom of the foundation. That the ancient architects also made use of models of their buildings is proved by the fact that there has recently come to light a medieval model of the fifteenth-century Church of St. Maclou, of Rouen, France (Plate 124).



The Interior of Choir looking East PLATE 117

CATHEDRAL OF DURHAM, ENGLAND

The Norman work of this choir (*i.e.,* the portion containing the heavy spiral columns and so on) dates from the period 1096–1133. The Eastern transept (Chapel of the Nine Altars), partly shown in the picture by the three windows and the great rose back of the altar, is of the Perpendicular period, and was built in 1242–1290. The whole cathedral group is one of grandeur and dignity, and its rivals are few. The Norman pillars are of such massiveness that they appear about the same width as the openings between them, and they are channelled with spirals, flutes and chevrons. The Norman character of the work produces an effect of "rocky solidity and indeterminable duration." Note the lightness of the two Easternmost bays (which are Gothic), as compared to the remainder of the choir.

In the medieval cathedrals all of the component parts coördinate. Their architects made use of only such forms as adapted themselves to the ensemble, and, according to some authorities, these cathedrals are the first and grandest efforts of the modern scientific spirit applied to architecture. The unerring ability of the medieval architect to lance

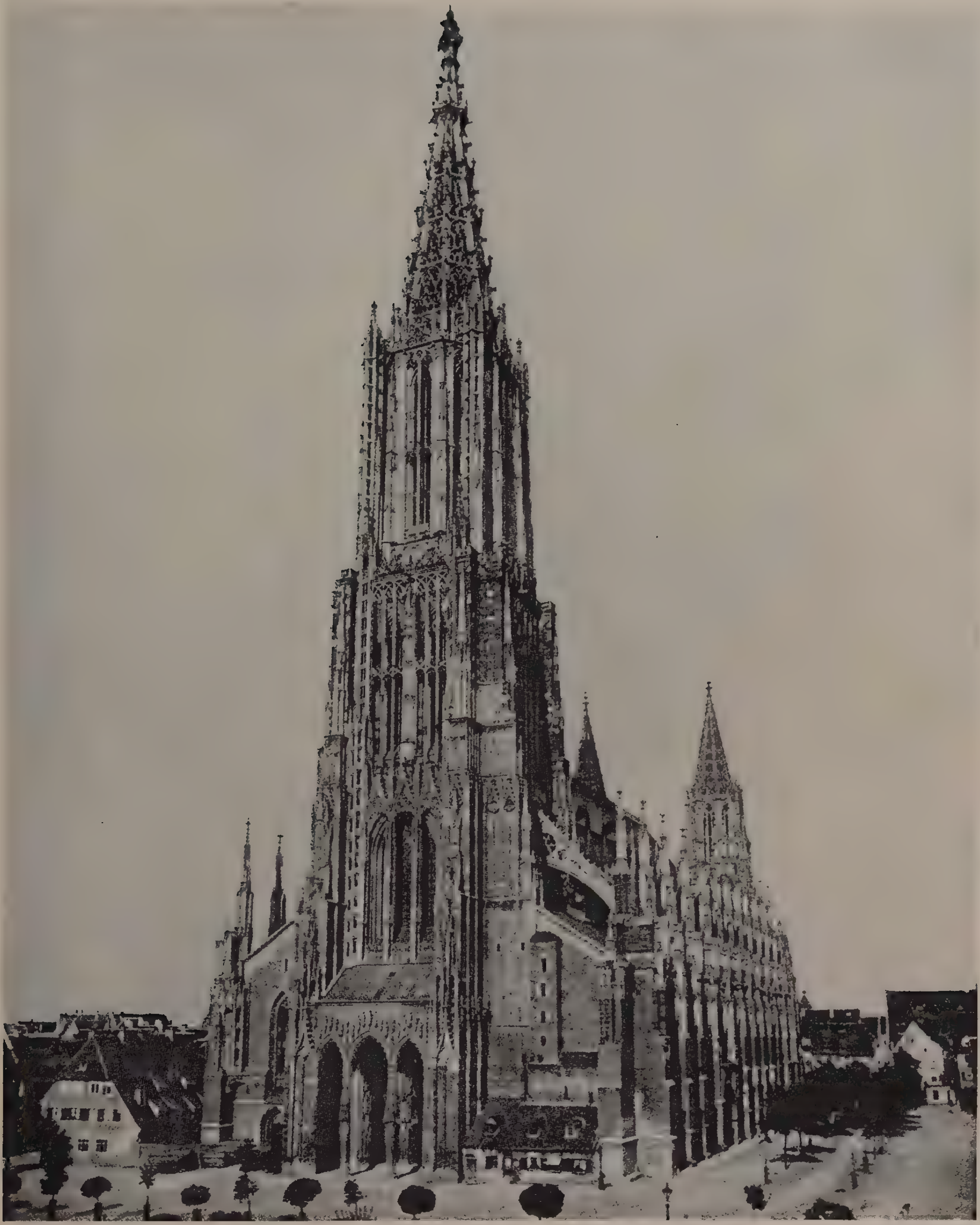


PLATE 118

CATHEDRAL OF ULM, GERMANY

The tower of Ulm Cathedral is loftier than any piece of genuine masonry construction in the world and rises to a height of 529 feet. To get an idea of the enormous scale of this structure, one has but to glance at the one-and-a-half-story house located at the foot of the building to the South of the central portal, and then glance at the open winding stairway from the roof over the portal to the base of the tower pyramid. The construction of this church dates from 1377–1477. It is noteworthy that the church has no transepts, and this permits a composition of grandiose simplicity, such as we find also in Bourges, France. With its great Western tower and the two spires at the Eastern extremity, this cathedral is most impressive.

flying arches, to soar his vaults into the heavens themselves, and to balance and counterbalance mighty thrusts, has never been surpassed, notwithstanding the superior knowledge of the theory of engineering prevalent today.

Nor is it only in the grand harmony of geometric combinations that we find the medieval cathedral builders excelling. The sculpture and statuary, with which the stories of the Old and New Testaments are told, ought to be given consideration. It is said that on the Cathedral of Chartres (Plate 25), there are at least 10,000 divine and human representations carved, drawn or painted, and some of the other cathedrals can boast as many. Unquestionably, this is quantity production, but it is the quality which is most truly exceptional. Upon the façades and

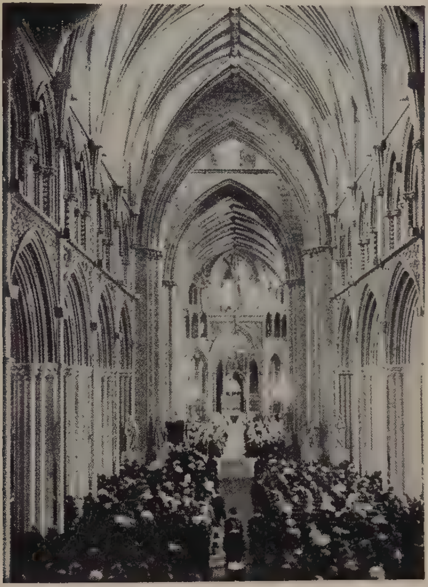


PLATE 119

The Interior looking towards Choir

CATHEDRAL OF TRONDHJEM, NORWAY

This cathedral was begun about 1020. Its oldest parts are in the Romanesque style, but many changes were made since, and most of the architecture seen in the illustration is of the thirteenth century or Gothic period. The proportions are good, the nave arches have a fine lift, and the spandrels and triforium are very beautiful. In front of the sanctuary is a stone screen which adds greatly to the interest of the building.

doorways and porches were carved myriads of figures in full and bas-relief.

The following is a description of the exterior carving of no particular cathedral, but is, so to speak, a composite portrait of the carvings of several of the cathedrals erected in the North of France.

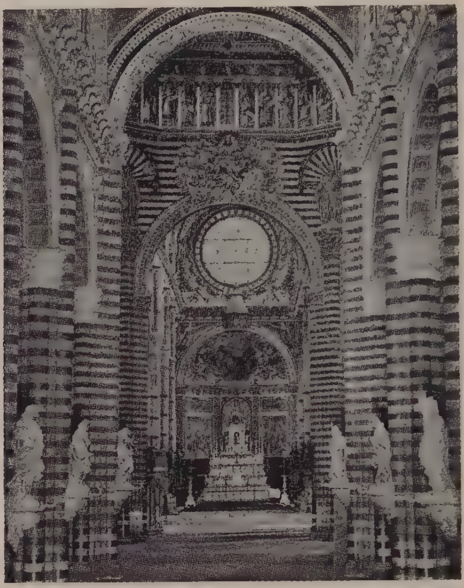


PLATE 120

The Interior, Looking towards the High Altar

CATHEDRAL OF SIENA, ITALY

The Siena Cathedral dates from 1245–1380. It was built on a cruciform plan, with an irregular hexagonal crossing which measures 58 feet across. The walls are of dark and light marble, and this gorgeous interior owes much to its beautiful decorations and sculptures. Some of the details, particularly the intrados of the aisle arches, have an Early Renaissance or Classic character. As this church now stands, only the North wing of the transept of the vast edifice is as originally planned. The existing partly built and roofless nave demonstrates that the whole project had great possibilities.

Usually, on the West front three cavernous niches containing three immense doorways are to be found. Upon the mullion of the central doorway is often placed a standing statue of Christ, holding the book of the Gospels in one hand while giving benediction with the other. His feet are treading on the serpent and the basilisk, the signs of the Evil One. The Twelve Apostles are ranged at each side on the splay of the doorway. On the pedestal under Christ is the figure of David or of the prophets who announced Christ's coming, together with representations in bas-relief of the liberal arts. Under the Apostles are carved (also in bas-relief) the virtues, and below them the vices, all in their proper relation. On the door jambs at our Lord's right will be found the Wise and at His left the Foolish Virgins. Above the Wise Virgins are seen the lamps suspended on a leafy tree, while above the

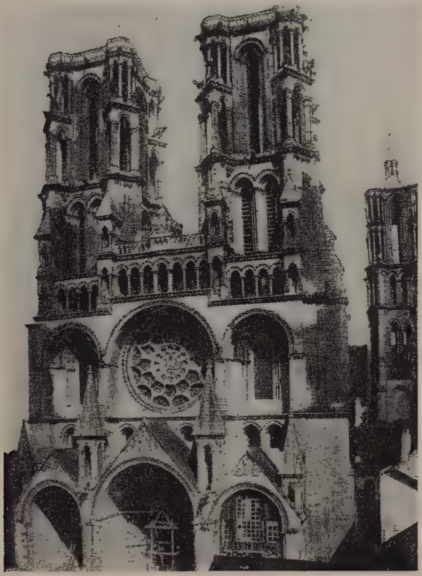


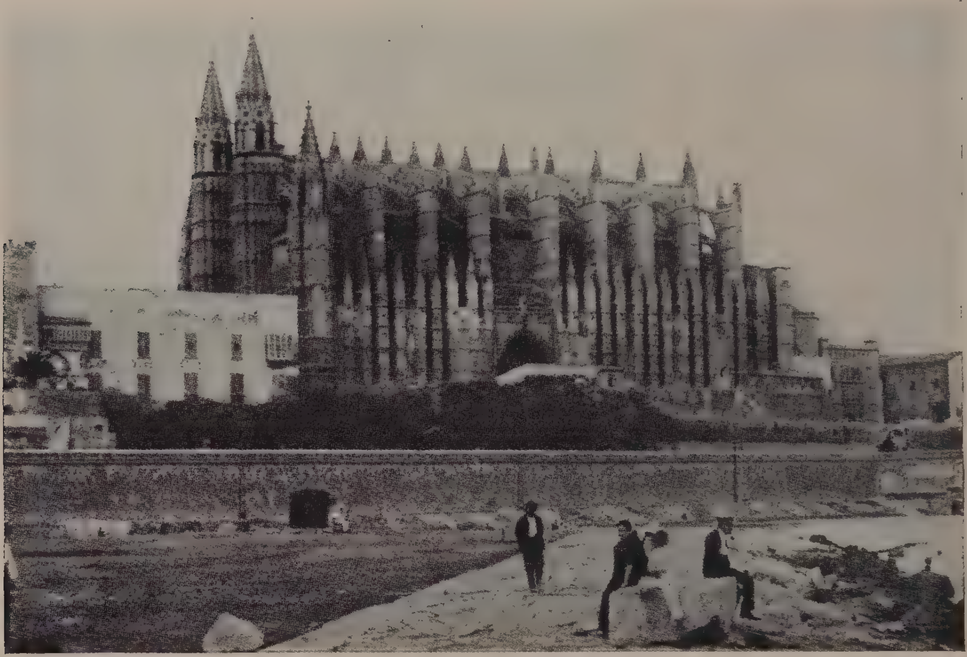
PLATE 121

The West Front

CATHEDRAL OF LAON, FRANCE

Begun in 1112, it is said that only the short span of two years were required to complete this work, and that it was then consecrated. The type is Early Gothic, and, if one were asked to name a work similar in character, one might be tempted to say that the transept façades of Chartres Cathedral (Plate 25) are the nearest approach to it. Without doubt the triple porches of the transept wings of Chartres are, in the main, similar to the triple porch on the West front of Laon. Like Rheims Cathedral (Plate 89), Laon was originally planned to have seven spires—two on the West front, two on each façade of the transept, and one over the crossing. Only three of these are raised to any considerable height, the two on the West front and the Western one on the South façade of the transept. The last-mentioned tower is shown at the right of the picture. Laon is unique among French cathedrals is having a square sanctuary end. The West front is a sturdy, vigorous piece of Gothic work, well composed and proportioned, and in the Western towers may be seen stone figures of oxen (see Chapter IX on *Symbolism*). The type of Gothic exemplified in this structure is decidedly simpler than Rheims, Rouen, and a great many other Gothic buildings, and was, therefore, less expensive to build.

Foolish Virgins is a dead tree struck by a felling axe. The lintel of the door contains a representation of the Resurrection, the weighing of souls, and the separation of the elect from the condemned. Above in the tympanum is carved our Lord as on the Day of Judgment, showing His five wounds. Angels are holding the Instruments of the Passion, while the kneeling Virgin and St. John are supplicating the Divine Judge. In the voussoirs of the arches (surrounding the head of the doorway) are Angels, and at the right and left the righteous and condemned respectively. Confessors, martyrs, virgin martyrs, prophets, patriarchs, kings, and sometimes a Tree of Jesse, are also to be found.

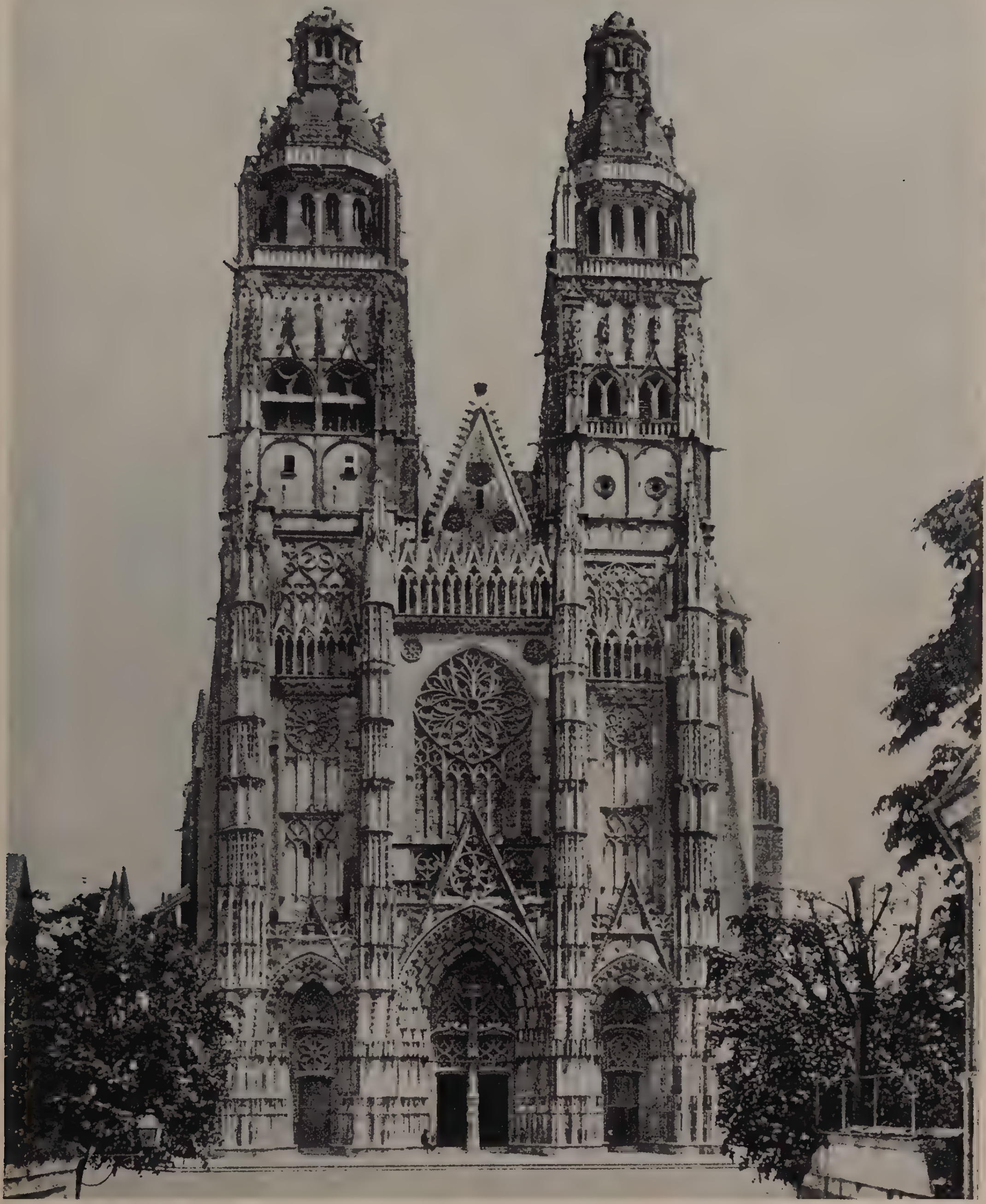


(Courtesy of "The American Architect.") PLATE 122

South-West View

CATHEDRAL OF PALMA, MAJORCA

This cathedral was built in the thirteenth and fourteenth centuries. On account of its towering bulk, the lack of very high Western towers (like those of Chartres, for example) is hardly felt. This cathedral was laid out by King Jaime I on a perfectly colossal plan. The nave is 56 feet wide between the columns; the columns are only about 5 feet round, and are said to be about 70 feet high. The picture reminds one of the Cathedral of Albi in its general view from the South. The buttresses that take the flying arches are stupendous. Observe the endless number of pinnacles on the outside of the chapel at the bottom of the illustration.



The West Front PLATE 123

CATHEDRAL OF TOURS, FRANCE

St. Martin of Tours erected the first Cathedral of Tours in 437. After the fire of 561 a larger church was erected by St. Gregory of Tours. The present structure was started in 1170 under the English King, Henry II, after a second fire had consumed the edifice erected by St. Gregory. It is built in the Gothic manner except as noted below. The most remarkable thing about the West front, apart from the exquisiteness of its details, is the beauty of its general proportions. The upper stones of the octagonal portions of the towers are built in the Early Renaissance manner, without undue clashing with the Gothic parts of the structure.

On the two sides of the door are representations, by female figures, of the Church and the Synagogue.

Carved on the mullion of one of the side-doors of the above-mentioned group of three will be found the statue of the Virgin, holding the Divine Infant in her arms, her feet treading on a serpent having the head of a woman. Upon the pedestal under the statue is carved the creation of man and woman and the story of the temptation. Over the head of the Virgin, serving as a "dais" and held by Angels, is the Ark of the Covenant. Upon the splay at the sides of this door the Three Kings, the Annunciation, the Visitation, the Circumcision, and David are represented. Upon the lintel one sees the kings and prophets, or Moses and Aaron and the prophets, while above is the death of the Virgin or

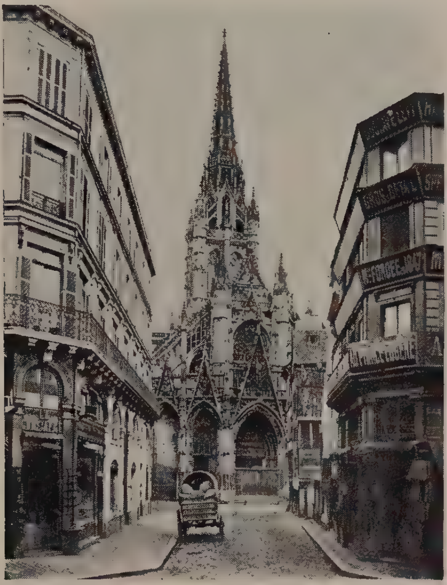


PLATE 124

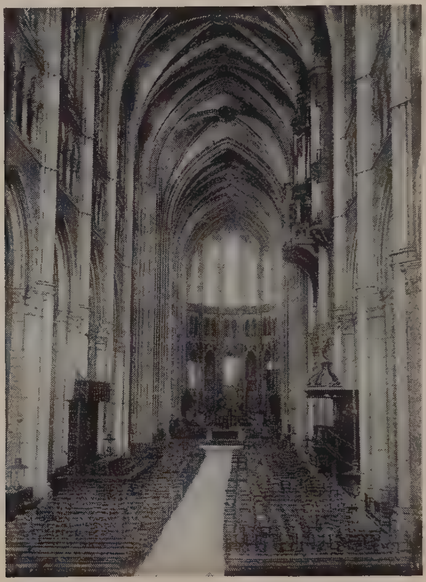
The West Front, Showing the Tower over the Crossing

CHURCH OF ST. MACLOU, ROUEN, FRANCE

This church is justly celebrated as one of the rarest surviving gems of Flamboyant Gothic. The building was erected in the fifteenth and the early part of the sixteenth centuries. It is one of the very few French Gothic churches which has its masonry crossing tower brought to its originally intended height; the work was indeed long delayed, and was not entirely completed until 1869. The church, including the open-work spire, is built entirely of stone.

her shrouding by the Apostles and her Assumption by the Angels. In the tympanum the Coronation is usually featured. The arch voussoirs contain Angels, and the prophets that foretold her glories.

The third door of the group of three is generally reserved for the Patron Saint of the diocese. In the splays are shown the representatives of the priesthood in the Old and New Law—Aaron and Melchisedech—with an Angel, the first martyr priests (St. Stephen, St. Denis, etc.), and sometimes the most venerated Saints of the diocese. On the lintel and in the tympanum will be found the history and legend of the translation of the Patron Saint's relics. At the bottom of the jambs will



The Interior PLATE 125

CATHEDRAL OF CHARTRES, FRANCE

Chartres Cathedral dominates the entire town and the countryside. It dates from 1194–1260. The plan was designed to have nine imposing towers, but only the two on the West front have been completed. Among the outstanding features of this cathedral are the broad triple porches of the North and South wings of the transept with their myriads of beautifully sculptured figures and ornaments, the Northern porch being particularly well designed. The Western portals are also noteworthy for their profusion of symbolism and sculpture. The vault is probably the first quadripartite vault to be built on an oblong plan. It rises 106 feet above the pavement. Of the two completed spires on the West, the Northern one is the older by about four centuries. The dates are 1506 and 1107. Chartres Cathedral boasts one hundred and thirty windows, which contain the most wonderful stained glass of the thirteenth century.

be seen in bas-relief the signs of the zodiac and the occupations of the year.

The faces of the buttresses between the three doorways will be found to contain the statues of the prophets, and under each a medallion containing a representation of his prophecy.

Upon the façades of cathedrals dedicated to the Virgin may be seen a row of colossal statues of her ancestral kings (formerly thought to be the kings of France), seemingly assisting at her glorification. On an upper gallery is placed a statue of our Lady surrounded by Angels. The pinnacle of the gable of the nave supports a statue of Christ in the act of blessing or an Angel with a trumpet, bringing to mind the Last Judgment chiseled on the tympanum of the great central doorway below.

The North and South wings of the transept generally have their doorways reserved for representations and stories of those Saints held in great veneration in the locality. Around the edifice upon the buttresses or against the walls of the chapels are carved figures of Angels carrying utensils used in the divine services (or sometimes musical instruments).

The foregoing remarks give some idea of the wealth of sculptured decoration that distinguished the medieval Gothic cathedrals of Europe. Their iconography manifests practically all of the story of creation and of man. It brings poignantly to mind the reward of the good and punishment of the wicked, the relation between the Old and New Law (through the figures of the Prophets and Apostles), the birth of the Saviour, the triumph of the Virgin over the evil spirit, and her descent from the Kings of Judea.

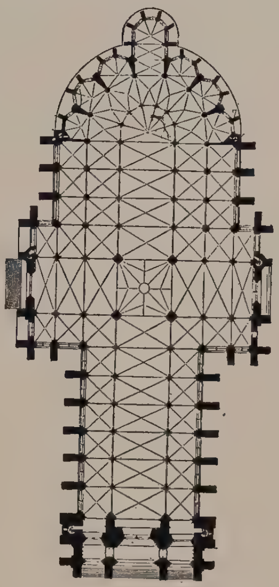


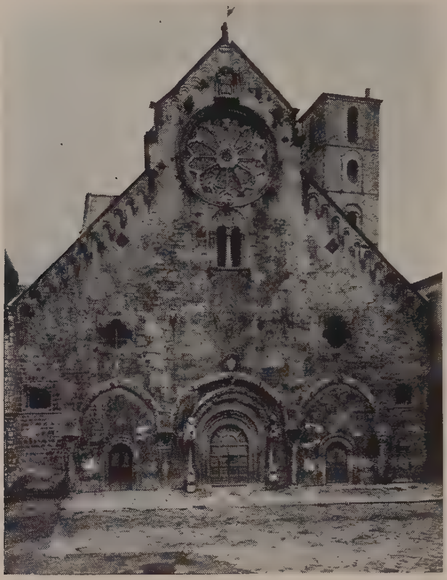
PLATE 126

Plan

THE CATHEDRAL OF AMIENS, FRANCE

Since Amiens Cathedral is considered the perfection of Gothic, it was thought best to reproduce here its plan. The West front is not built as indicated in this illustration, which shows how it would have been built if the towers had been erected on the whole of the tower foundations, instead of on only a portion of them. The foundations underground are actually built in place as shown in our plan. In addition, chapels of a later period are built down the entire length of the nave, between the buttresses and on each side of the church. These are not shown in our plan.

Whereas sculpture held sway on the exterior of the medieval Gothic cathedral, the interior was profusely decorated with stained glass, frescoes and tapestries. The windows portrayed in magnificent glass the Parables, the legends of the Saints, the Apocalypse, and again the scene of the Last Judgment. In the Lady Chapel, the windows repsented her history and legends, the Tree of Jesse, the prophets who foretold her privileges, etc. Around the choir were frescoes picturing the Passion of Christ, the Prophets, Apostles, Saints, and the Kings of Judea.



The West Front PLATE 127

CATHEDRAL OF RUVO, ITALY

The façade of this cathedral dates from the thirteenth century. Its architecture is to a great extent similar in character to the doorway of Altamura Cathedral (Plate 36), although the latter was built somewhat earlier. The general lines and proportions produce a striking effect. Aids to this end are the low aisle walls, the steep roof raised just a little at the nave walls, and the raking arched corbel tables. The three arches on engaged columns, the three doorways, and the rose window high in the gable, are effectively placed. The pyramiding promoted by the square windows in the corner piers, the medallion-shaped windows over the side doors, and the mullioned window under the rose, do much toward giving the edifice that rising movement—the Christian symbol of the Resurrection—so desirable in buildings devoted to Catholic worship. The façade is flat, with no buttresses or projections of any consequence save the columns and grotesques at the central doorway. In a design so well managed, a great amount of color in the big modelling of a façade is not keenly missed.

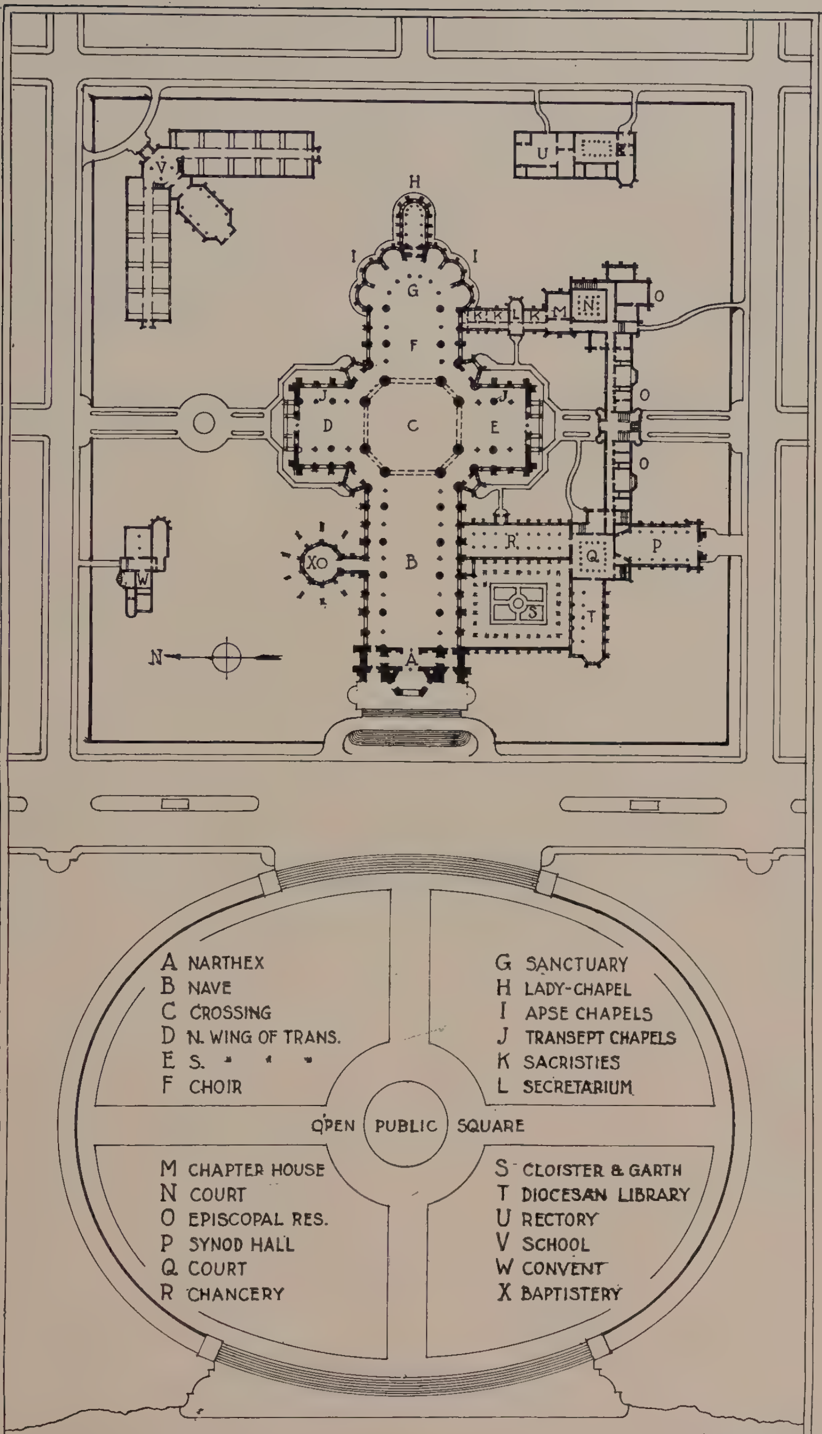
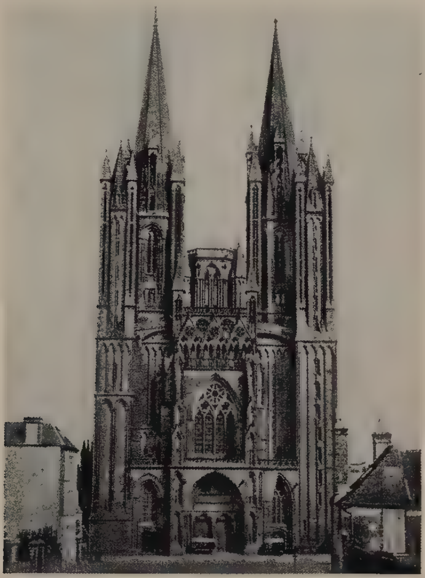


PLATE 128

GROUND PLAN OF MODERN CATHEDRAL WITH DEPENDENT BUILDINGS

(Edward J. Weber, Architect.)

There were beautiful pavements throughout, and in the center of the nave floor was placed a labyrinth symbolical of the obstacles that are encountered in this life. In the center of the labyrinth were incised the names and portraits of the architects of the structure, as if to show they had first to traverse troubles and trials before their mighty efforts brought the edifice to a successful conclusion.



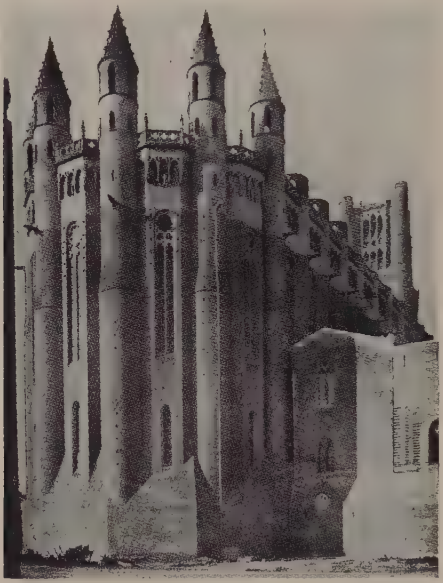
(Courtesy of "The Architectural Record.") PLATE 129

The West Front

CATHEDRAL OF COUTANCES, NORMANDY, FRANCE

This cathedral, Gothic in style, was begun in 1030, and consecrated in 1056, and the few items necessary to complete it were shortly afterwards supplied. The curious effect of a sort of two-in-one tower is very apparent in both towers of the West front. If one glances at the right hand tower, for example, he will note the staircase tower (with the numerous small windows) leaning against the main tower, and apparently serving as a buttress for it. The towers mount to a height of about 256 feet. An idea of the magnitude of the building can be gained by glancing at the rising row of numerous small windows in the right stair turret.

To these enrichments must be added the priceless tapestries and curtains surrounding the choir and sanctuary, the embroidered vestments, the screens and enriched choir-stalls profuse with elegant sculptures, the altars of fine marble, enamel and bronze, the mural decorations of the numerous chapels, the reliquaries, the admirably fabricated grilles, the silver lamps, the crowns of light hung from the vaults, the presses and chests painted and furnished with plates of gilt metal to secure the treasure therein, the statues of metal and alabaster, the tombs, the choir screens covered with beautiful sculptures, and the votive figures against the pillars. Such is the description of only a small part of a typical cathedral of the greatest period of religious enthusiasm the world has ever known.

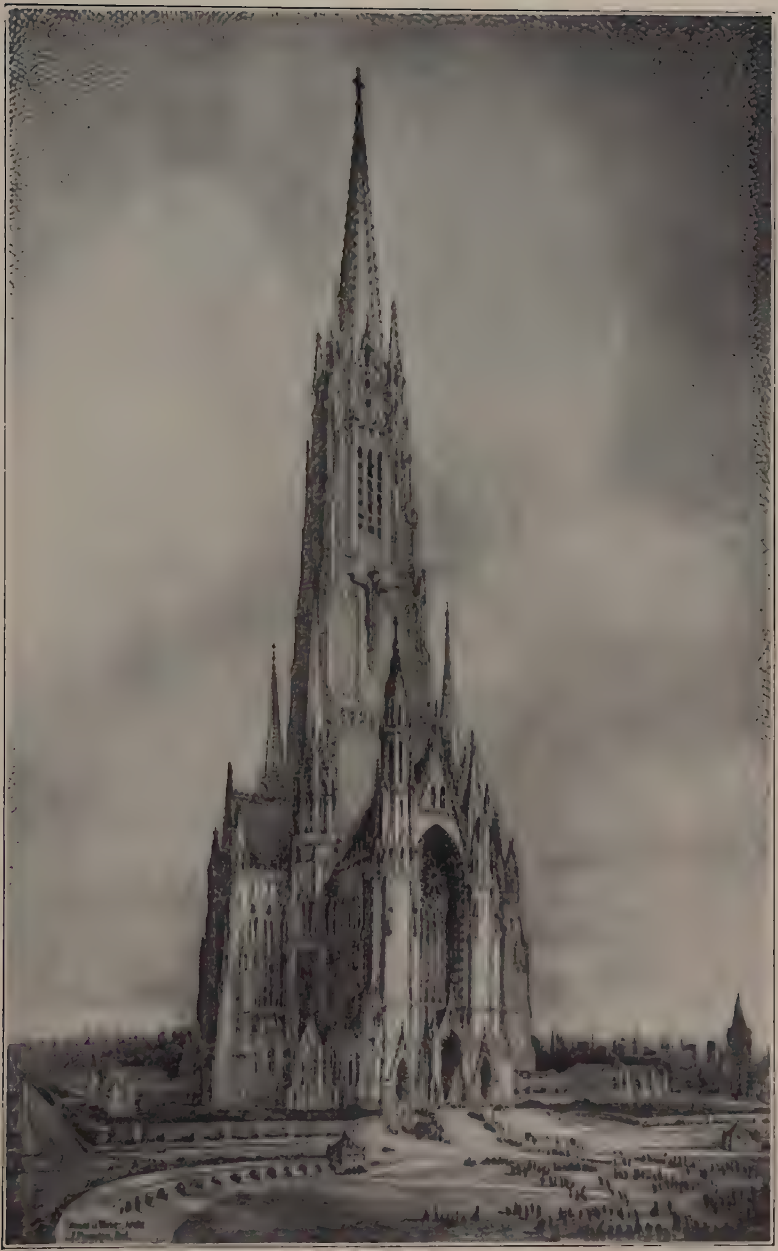


The Apse PLATE 130

CATHEDRAL OF ALBI, FRANCE

This cathedral was built between the years 1282 and 1512, and its exterior consists entirely of red brick. The nave has a clear span 59 feet wide; there are no aisles and no transept in the church, and, as can be noticed, no projecting chapels in either the nave or the choir. A great tower, 259 feet high, is found on the Western front in the center of the nave. Chapels range along each side of the nave and choir, between the gigantic buttresses which rise above the chapel ceilings, and, contrary to general custom, are exposed on the inside instead of the outside of the church. The rood screen in the church is unrivalled, while the fresco decorations, choir stalls and other fittings are of exquisite beauty. This unique apse has elongated round brick buttresses crowned by pinnacles. Slender Gothic windows reign throughout, and a corbel table and open parapet are placed at the top of the walls. It is a pity that the roof is flat, for a roof of gentle slope would enhance the structure. This great church brings to mind this question: if red brick and extremely plain walls have made Albi the thing of beauty it is, why should not we of the twentieth century use these means today in fine churches?

A few dimensions may be noted here to give an idea of the mighti-



(Edward J. Weber, Architect.) PLATE 131

GENERAL VIEW OF A MODERN CATHEDRAL

ness of scale of some of the cathedrals of medievalism. Winchester (Plate 166) is the longest medieval cathedral, measuring about 560 feet. Milan (Plate 66), Seville (Plate 6) and Westminster Abbey all measure approximately 520 feet; Rheims (Plate 89) measures 500 feet, Cologne (Plate 4) 468 feet, and Notre Dame de Paris (Plate 113) 430 feet. The width across the transept of Milan is 320 feet, Cologne 275 feet, Rheims 200 feet, and Notre Dame de Paris 160 feet.

PLATE 132

CATHEDRAL OF QUIMPER, BRITTANY, FRANCE

This cathedral is completed in a beautiful Gothic style, and, while it is not included among the five or six great French cathedrals, it can justly lay claim, among other things, to having in its two Western towers the most imposing and noble examples of their type in all Christendom.

The highest interior is that of Beauvais (Plate 116), which rises 157 feet to the underside of the vault; Cologne measures to a corresponding point 155 feet, Seville (Plate 6) 130 feet, and Westminster Abbey (the highest in England) 102 feet.

The width of the nave of the Cathedral of Gerona in Spain measures 73 feet, or only 5 feet less than the Renaissance-styled St. Peter's at Rome. The latter, which is the largest church in the world, has a length of 600 feet inside, counting nave, choir and sanctuary. Seville has a nave 50 feet wide, while that of Beauvais is 47 feet, measuring to the centers of the pillars. Cologne's nave between the pillars is 41½ feet, while that of Westminster Abbey is 30 feet.

The Cathedral of Seville covers more ground area than any other medieval church. It has a plan of five naves—or, if you wish, a nave and four aisles, two on each side. To give a better idea of its magnitude, it might be stated that each one of the four aisles is identical in width and height with the central nave of Westminster Abbey.

(John T. Comes, Architect.) PLATE 133

ST. PAUL'S CHURCH, BUTLER, PA.

As to towers, Ulm Cathedral (Plate 118) carries away the palm, for it has one 529 feet high, while Cologne's twin towers run a close second with 512 feet. Strassburg Cathedral has one tower 466 feet in height, while the twin towers of Rheims measure 267 feet. However, the spires of Rheims were never completed, or the total height would have mounted to vie with the others. The towers of Notre Dame, Paris, measure 224 feet, but they also are incomplete, that is, without spires.

The widths of some West fronts are: Cologne 200 feet, Paris 160 feet, and Rheims 150 feet. The Cathedral of Strassburg has a rose window 42 feet in diameter, the largest in the world. To impress more clearly upon the reader the magnitude of these great buildings, the following comparison may be used. The height to the top of the gable placed over the central front doorway of Rheims Cathedral measures about 80 feet, or a few feet higher than the entire front of St. Paul's Cathedral, Pittsburgh; or again, this single doorway of Rheims with its cavernous recess, two piers and one gable, occupies a space approximately equivalent to the entire front of the Pittsburgh Cathedral contained between its two towers.

A prominent English literary artist, during the course of a visit to the United States, complimentedus upon the appearance of some of our commercial edifices, while criticizing our ecclesiastical structures. He stated that some of the latter are very beautiful in themselves, but complained that they do not dominate other structures as heretofore, or as churches generally still do in Europe. The temple of God should dominate the temple of the calf of gold. Monuments have been erected to the glorification of many of our national heroes; the Washington monument in Washington, D. C., is 500 feet high. Surely, we ought to erect grander monuments to the glorification of God.

Big business by big buildings dominates the church. Formerly cathedrals were always the outstanding structures in size and richness. Thus, it should be now. The dome of St. Peter's at Rome is so vast that it can be seen by the traveler for many miles before the city is revealed. This is likewise true of the Cathedrals of Chartres, Beauvais, Cologne, and many others. The temple of mammon outshining in height and splendor and dwarfing the house of worship was something unheard-of before the advent of sky-piercing commercial buildings. It it needful today, as it was in medieval times, to rear cathedrals loftier and with greater massiveness and comeliness than are possessed by the surrounding civic buildings. Loftiness, the symbol of the resurrection, is required to lift men's souls to God. This dwarfing by commercial structures need not be tolerated when it comes to the question of the modern cathedral.

From the earliest times architecture has always been in sum and substance an attempt to roof great areas. Today structures of immense span and height, for various uses, can be and are being erected with a minimum use of material. If the Egyptians set up mountains of solid block stone (*i.e.,* the Pyramids), if the Romans roofed vast spaces (*e.g.,* the Pantheon, 142 feet in diameter), if the Byzantines created the soaring Hagia Sophia (the Church of Divine Wisdom in Constantinople), if the medieval architects brought into being the Cathedrals of Amiens (Plate 1), Beauvais (Plate 116), Albi (Plate 130), and Gerona, and if the men of the Renaissance are responsible for the dome of the Cathedral of Florence and the mighty St. Peter's at Rome, why should we be fearful? With our ability to build bridges with a single span of more than half a mile and airship hangars 300 feet wide without intermediate supports, and office buildings over 1,000 feet in height, anything is possible. With our modern machinery a voluminous mass like St. Peter's or a broad span like the nave of Gerona, or a dizzy height like that of the choir of Beauvais, or a sky-piercing spire like Ulm, is mere child's play. The speed with which monuments can today be consummated, is also an advantage. If the effort were made, it would be possible to build in the short space of two or three years the mightiest of all ancient cathedrals. Today there need be no tedious waiting for generation upon generation to bring vast cathedrals to completion. Our efforts are not always artistic, but there is no reason why we can not build a mighty modern cathedral, not only practically, substantially and quickly, but possessing besides grandeur and beauty.

The writer has designed a modern cathedral shown by two illustrations (Plates 128, 131), as follows: a ground plan of the cathedral proper (which likewise shows the dependent buildings of the cathedral group) and a perspective view of the exterior. Such a cathedral would be a possibility for any one of a dozen or more dioceses in the United States.

The general scheme shows a group of buildings containing room for all the diocesan and parish activities. A piece of elevated property is selected. A great open public square is supposed at the West to be fronting on a lake, a river, or the sea. The ultramodern will find in the open, public square aeroplane landing places, and in the semicircular constructions at each side of the square might be found hangars for the storage of aeroplanes. Public comfort stations are under the wide boulevard in front of the church, and parking spaces for automobiles are innumerable.

The plan is that of a Latin Cross, with a tower over the crossing, this scheme being, according to expert opinion, the most monumental conception possible for a cathedral. The great central tower symbolizing Christ is buttressed by four angle towers, symbolizing the Four Evangelists; or, in other words, Christ is supported by the four books of the Gospel. The two towers on the West front are symbols of St. Peter and St. Paul.

There is a radiating apse of seven chapels, symbolizing the Seven Sacraments or the Seven Gifts of the Holy Ghost. The Lady Chapel is in its traditional place, on the axis East of the choir, and additional chapels are found in the wings of the transept on the East wall; there are three on each side. Three grand portals symbolizing the Triune God are placed on the West front, and the central one is doubly protected by a high porch; while other spacious porches are provided for the entrances to the North and South wings of the transept. Additional entrances are in the four towers that support the great central one. The pulpit could be placed on one of the piers at the South-West corner of the crossing. The aisles contain no pews, the space there being reserved for confessionals, shrines, etc.

The grand opening out effect in the plan under the central tower will insure good acoustics and enable all worshippers readily to see the high altar and the pulpit, and it might be added that, because no columns obstruct the view, all sittings will be desirable ones, so to speak.

The place of the baptistery is on the North of the nave, while the sacristies, secretarium and chapter house are on the South side of the choir. The Episcopal residence and other diocesan buildings (such as the Chancery, Synod Hall and the diocesan library) are found on the South, and there also the great cloister is placed. In the United States, the cathedral is in nearly all cases also a parish church; hence, a rectory, school and parochial convent are provided. These are placed away from the cathedral to the East and North. No dependent buildings are placed directly against the North side of the church, where there would be constant shadow because of the great height of the nave and choir. The buildings to the South are built against the cathedral in the traditional way, but they are kept low so that by contrast the dignity of the monument will be augmented.

The style chosen is a modern interpretation of the "pointed arch" or "Gothic" style of architecture, not only because the greatest cathedrals are built in this manner, but also because it is the style best suited to a high pyramidal effect such as is exemplified in our design. John Ruskin's appreciation of the pointed arch ("Lamp of Beauty" in "Seven Lamps of Architecture"), will be remembered:

> "The pointed arch is beautiful; it is the termination of every leaf that shakes in summer wind, and its most fortunate associations are directly borrowed from the trefoiled grass of the field, or from the stars of its flowers. Further than this man's invention could not reach without frank imitation. His next step was to gather the flowers themselves and wreathe them in his capitals."

Stone is the material for the exterior, and acoustic tile would form a large part of the wall and vault-surfacing inside. The boiler plant would be placed in one of the outside buildings, depending to some extent on the ground levels and the direction of the prevailing winds. The crucifix on the front of the tower would be flood-lighted at night. A station for broadcasting sermons could be placed in its proper position. On the great central steeple might be a beacon light to guide aviators. The cost of this cathedral need not be greater than that being expended on several cathedrals now in course of construction in the United States. The public square in front is ideal but not necessary, and the buildings could be erected equally well on property irregular in shape.

CHAPTER VII

SACRISTIES, BAPTISTERY, TOWERS, CHOIR, DOORS, AND WINDOWS

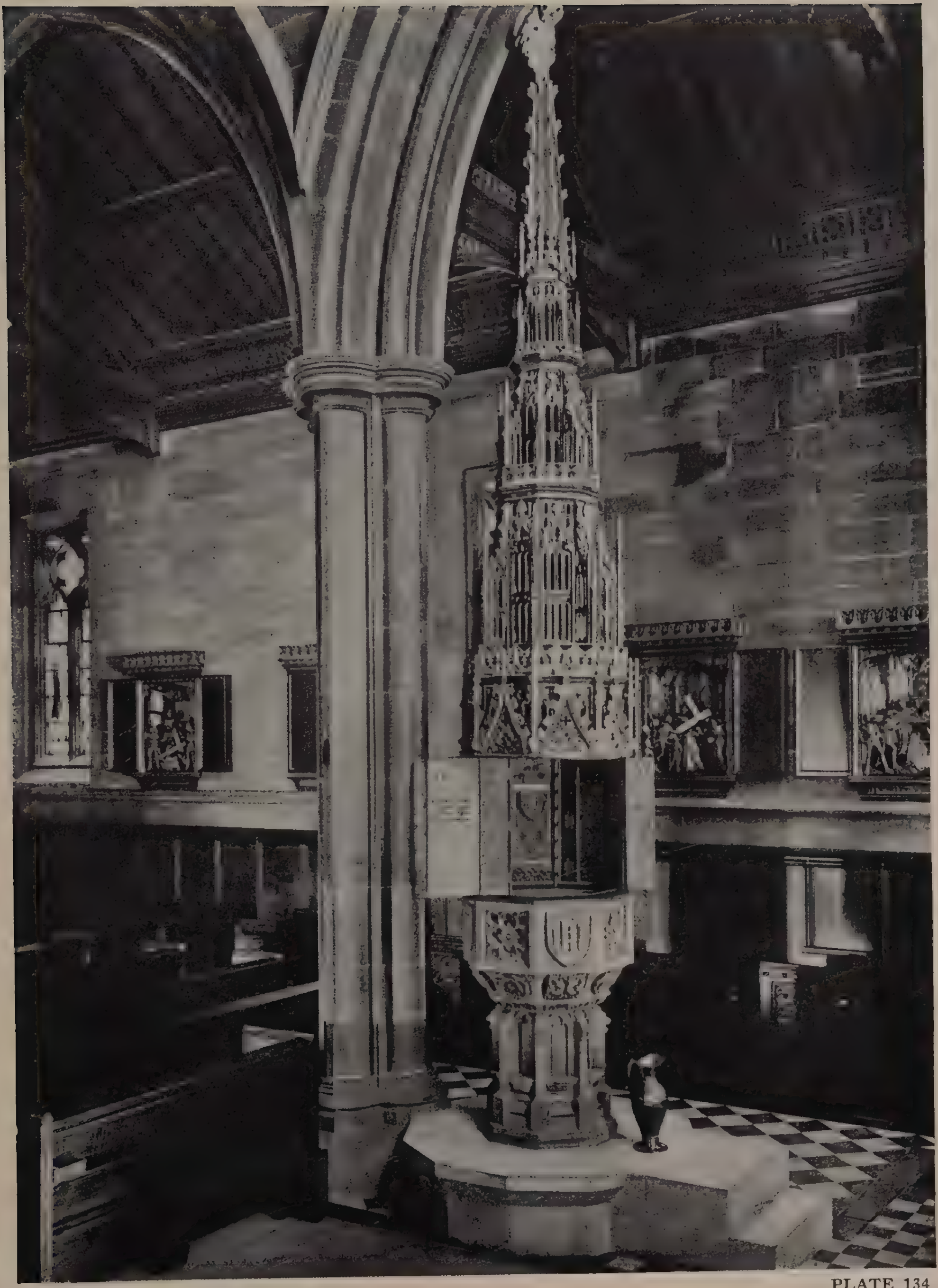
SACRISTIES—Today the idea of building a church without a sacristy does not enter our minds; yet in ancient times the vast majority of churches had no such accompaniments. In England we have proof of this in the many ancient low single doors, called priests' doors, entering from the outside of the building directly into the chancel. Other mute witnesses are the numerous piscinas sunk in the walls on the Epistle side of medieval choirs. The space to the East (at the back) of the high altar, required by the rubrics for the consecration of this altar, was often made large enough to accommodate the vestment case, and it was there that the priest robed for Mass and other services. It is customary today to have two sacristies—one for the priests and one for the altar-boys, usually arranged one on each side of the sanctuary.

The priest's sacristy should be on the Gospel side, although this is not always possible. It happens occasionally that both sacristies are perforce placed at one and the same side of the sanctuary, or again both will be found at the back of it; or one is situated at the back with the other to one side. When the sacristies are on opposite sides of the church, an ambulatory in the rear of the sanctuary should be constructed to allow the altar-boys to walk from one sacristy to the other. To pass in front of the altar in going from sacristy to sacristy is, to say the least, very unbecoming when the congregation is assembled.

The entrance from the sacristy to the sanctuary is arranged by means of a door, which ought to be wide enough to permit priests and servers to go with facility in and out in procession two abreast. A width of from 3 feet 4 inches to 3 feet 6 inches ought to be sufficient, and the door should not be too low for the passing of the processional cross borne by the acolyte who leads the procession. The crucifix in the sacristy, called for by the rubrics, should be in a prominent place and readily seen from the door entering the sanctuary. Occasionally, unusually large sacristies are demanded, in which case it becomes increasingly difficult to make them look architecturally well on the outside, as they tend more and more to compete with the exterior of the sanctuary. As a rule, greater care should be exercised to arrange sacristies harmoniously on the outside. The East end of the church contains the altar, where our Lord constantly dwells, and, although we take great care to beautify the interior of the chancel, yet this part of the church externally receives, as a general rule, very little consideration. In ninety-nine out of every one hundred cases the East end is the least successful part of our present-day churches, whereas it ought to be most beautifully executed. Sacristies which measure 9 by 12 feet for small churches and about 15 by 17 feet (or an equivalent area) for large churches, are sufficiently ample. These dimensions apply to both boys' and priest's sacristies. In the priest's sacristy should be found the vestment case, the places for the linens and various utensils, space for missals and other books, and a safe to contain the sacred vessels, the baptismal and marriage records, etc. A cope case will also be needed, together with a piscina and a wash basin. An incinerator for burning the cotton used in the celebration of certain sacraments is a great convenience, but, if sufficient funds are not available, it can be dispensed with. The main switchboard for the electric lights should be in or near the priest's sacristy.

In the sacristy allotted to the boys there should be found room for the lockers and cases for the altar boys' ecclesiastical and street wear. A fireproof recess or closet in the wall closed by a fire door should be provided for the censers. A large kitchen sink without a drain-board, a slop sink, a table for preparing flowers, a closet for the storage of the janitor's things, and a closet for candles, candlesticks, flower vases, etc., complete the usual requirements for the boys' sacristy.

The Baptistery and Font.—There are three degrees in the administration of the Sacrament of Baptism. The first takes place in the porch or narthex of the church, the second in the nave, and the third in the



(G. F. Bodley, Architect.)

PLATE 134

View of Font and Stations of Cross

CHURCH OF THE HOLY ANGELS, HOAR CROSS, ENGLAND (MODERN)

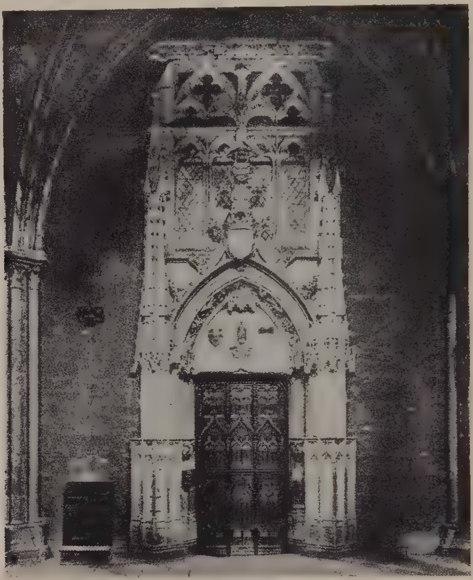
baptistery itself. Because in the first degree the priest says: "Ingredere in Templum Dei," it follows that the baptistery, liturgically speaking, must be off the nave of the church, since the narthex is but the place of the catechumens. The nave is, strictly speaking, the "Templum Dei," for it is the place of the faithful. The ideal arrangement is, whenever possible, to have a separate chapel for the baptistery, and, if it is large enough, an altar can be placed therein. When a separate chapel is not possible, a railing, screen or similar separation should mark off the baptistery from the nave floor. There should be an ambry in the wall of the baptistery, and, if it so happens that the font is designed with a ledge wide enough to hold the candle and other necessary objects, no table need be required. A descent of three steps should be arranged into the baptistery; but, if this is not possible, at least one must be used (see Chapter XI, page 303).

The West Door PLATE 135

MAGISTRAL CHURCH, ALCALÁ, SPAIN

The door of the Magistral Church in Alcalá is a very fine product of the Late Gothic period, which was coëval with the Perpendicular style of England. The church itself was built in 1136.

The font basin should be designed with two compartments. The small one placed on the left is for the blessed water, while the large one on the right serves for receiving the water poured over the head of the child. The latter compartment contains a drain for conducting the used water to the sacrarium in the ground; the first compartment has no outlet. A cover for the font is required, which is to be locked when the font is not in use. The top of the basin should be 3 feet 4 inches above the floor.



The Door to the Sacristy PLATE 136

CATHEDRAL OF BOURGES, FRANCE

To the Cathedral of Bourges belongs this fine example of a sacristy door, built in the best style of Gothic art. The statue in the tympanum over the door is quite out of scale, and may have been appropriated from some tiny shrine in one of the city households. Were this figure a harmoniously conceived seated or kneeling figure in proper scale, and were the statues placed around the buttresses on each side of the door, the beauty of this fine portal would be enhanced.

Fonts can be of marble, stone, metal, or wood. If of wood or a material not impervious to moisture, there should be a lining of metal on the inside of the bowl. The cover can be of wood or metal, and it may be arranged to lift off, pivot, hinge or slide horizontally. It can be hung from a bracket which swings from the wall, or it can be raised up, if balanced by a counter weight. From a traditional standpoint, this last system has probably more to recommend it than any of the other schemes. There is also the scheme of the eight-sided, high, vertical cover, with five of the sides forming doors to open out, while the pyramid on top rests on the three fixed sides. On the eight insides of such a font cover can be pictured the eight cardinal virtues with the corresponding vices shown being trampled under foot. Some of the high, pinnacle-shaped, richly carved and tabernacled oak font covers of the Late Gothic period in England are of great magnificence.

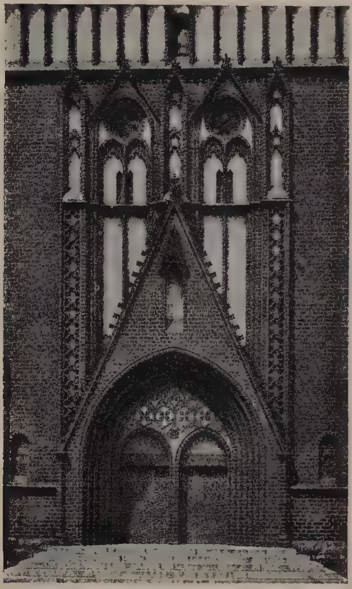


PLATE 137

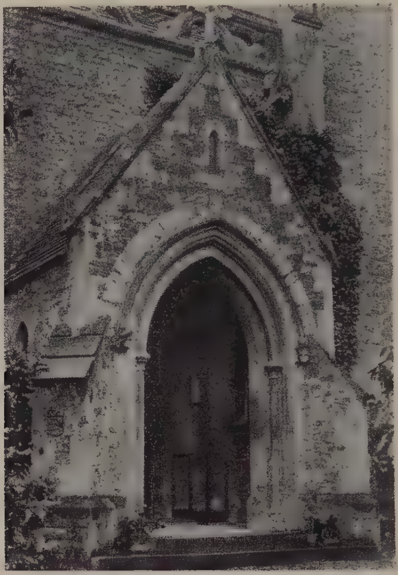
The Main Portal (Modern)

CHURCH IN BITTERFELD, GERMANY

The white panel fillings bring to mind the stucco used in arched corbel tables and others placed on the Lombardy churches of North Italy in the Middle Ages.

Towers.—As a general rule, the scheme of putting two towers, one on each side of the central gable of the West front, spells failure on account of its being more appropriate for grand cathedrals, like those of the medieval Continental type of Europe. Towers placed over the juncture of nave and transept—as in the Burgos and Canterbury cathedrals and some of the English parish churches—can be made very effective, provided the nave is not of too great a width.

In placing the tower on the church, it is very important to study the topography of the city or village in which the proposed church is to be erected. When it is possible to locate the tower on the axis of a street, so that it will be seen from a distance, it is well to take advantage of the opportunity. A hatch in the tower should be arranged to facilitate hoisting the bells into place, and it should be so contrived that the bells can be hoisted with a block and tackle from the floor of the church.

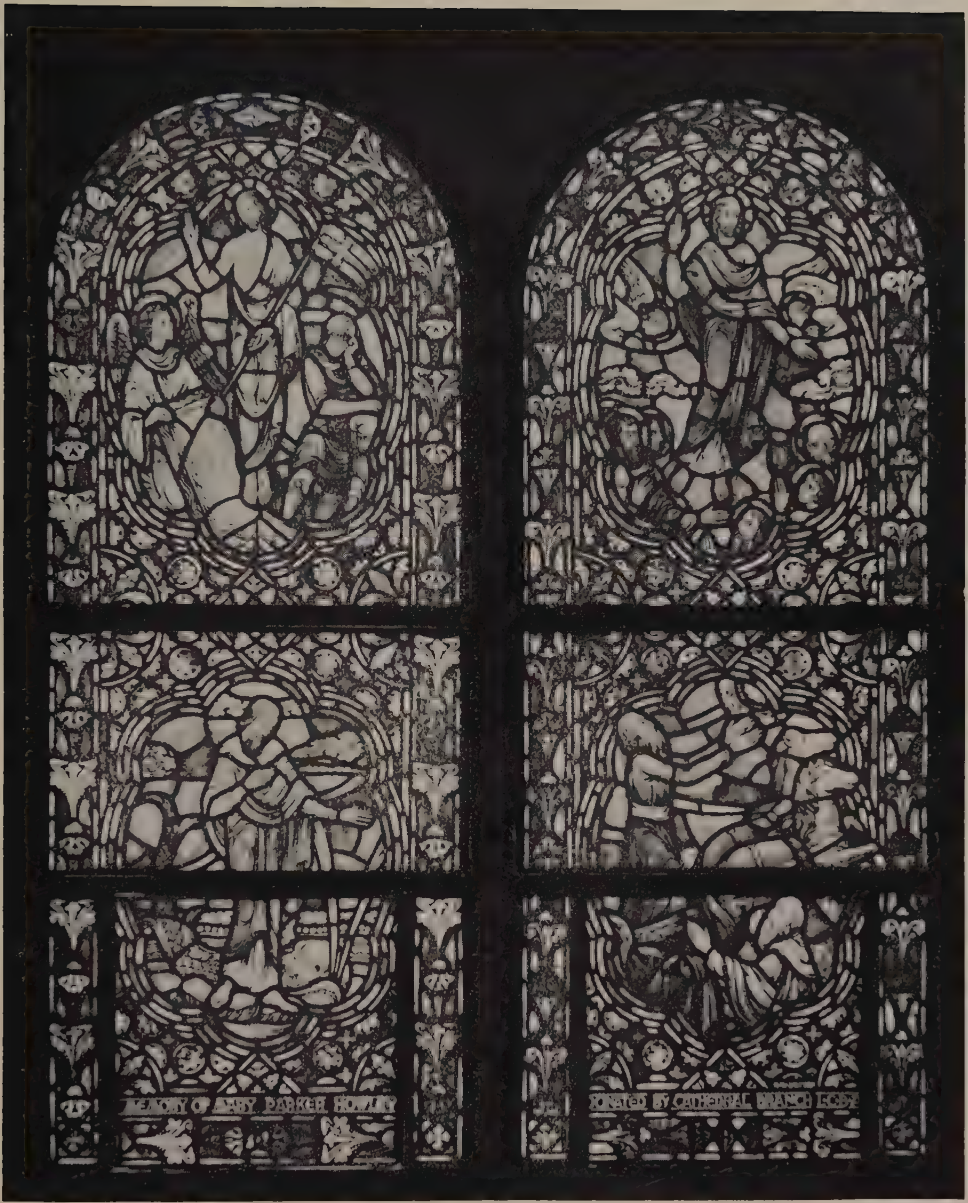


(Courtesy of "The Architectural Record.") PLATE 138

THE PORCH OF WARMINSTER CHAPEL, WILTSHIRE, ENGLAND

This porch was built when the architecture of England was in its prime; at least, the English parish churches of this period have never been surpassed. The style of this work appears to be Decorated Gothic of the fourteenth century. Porches of this character in English churches were usually given a generous projection. There are small window openings on each side. The angle buttresses are sturdy, the stone work has an interesting texture, and the cross is possessed of great beauty.

A puny, insignificant tower should never be built. It is necessary for the architect to make diagonal drawings of the tower taken at an angle of forty-five, for they will aid him greatly in securing correct proportions in execution. It might be stated in passing that it is well established that exterior diagonal drawings made at an angle of forty-


MEMORY OF MARY PARKER HOWLEY
DONATED BY CATHEDRAL BRANCH LCBA

(Edward J. Weber, Architect.)

PLATE 139

Aisle Window

ST. JOSEPH'S CATHEDRAL, WHEELING, W. VA.

(Stained Glass by George W. Sotter.)

five degrees are of tremendous importance for any part of the building, for they help the architect to visualize to better advantage the projections of buttresses, transepts, porches, and the like, and the recessing of doorways, windows, niches, etc.

On small and even large churches, bellcotes can be well managed on the West front, on the apse, or elsewhere. For St. Joseph's Cathedral, Wheeling, W. Va. (Plate 28), the bellcote is so designed that it contains three large bells. Some of the California mission churches have places for many bells in cotes; for example, the cote of the San Gabriel mission church has arches for six bells.

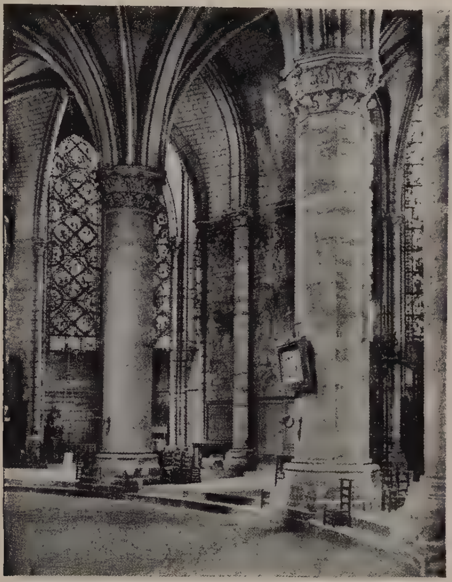


PLATE 140

Deambulatory of Apse and St. Joseph's Chapel

CATHEDRAL OF CHARTRES, FRANCE

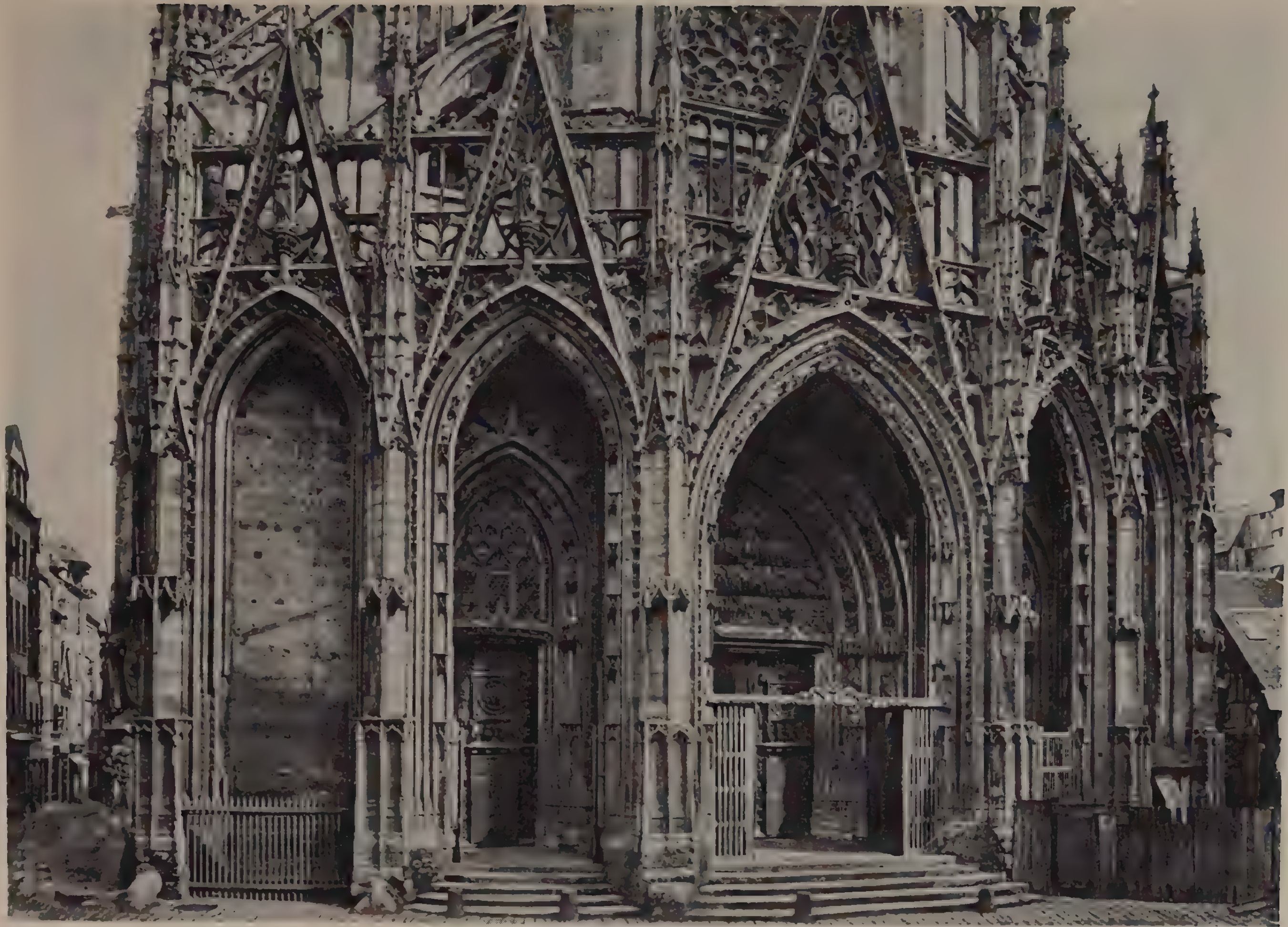
Thirteenth-century Gothic is here shown in all its simple beauty. Stone is used everywhere—for walls, pillars, vaults, and floor. Observe that the columns are alternately round and octagonal, that the vault ribs and arches have either a colonnette to rest on, or have ample room (without crowding) on top of the abaci of the column capitals. We see here two of the apse chapels; note that they are raised two steps above the deambulatory. This illustration shows also examples of the fine thirteenth-century glass of which this church is the famous and fortunate possessor.

On bellcotes, there is no need for the architect to locate the hole in the roof for the ferule in which the bell-rope runs, as this is done by the manufacturer or bell-hanger when the bell is hung. The principal concern of the architect must be to take precautions so that when the bell-rope is dropped down plumb it will arrive at some place on the floor where the sexton can find comfortable standing room, while ringing the bell.

The Choir.—It is customary to place the choir of singers in a loft over the narthex or vestibule at the front entrance to the church, although it is contended by some that the correct place for the singers is in front of the sanctuary. Nevertheless, for reason of economy, most churches will probably be built with the choir of singers in the first-mentioned place, and near the singers the organ will be found. It is difficult to give advice relative to the space required for the organ and the singers, for all depends upon the number of stops in the organ and the size of the local choir. A book-case for the music books and a closet for the singers' coats should be provided. It is best to have the floor of the choir level. From the organ it is necessary to run a galvanized iron

PLATE 141

Organ Case (Modern)
CHURCH IN NEUSTETTIN, GERMANY



View of the Five-Arched Porch

PLATE 142

CATHEDRAL OF CHARTRES, FRANCE

In its extraordinary five-arched porch this church has a gem that is unique, not only in Gothic architecture, but in the architecture of all time. The porch is so composed that it bends in plan around the front of the church in three planes, the central one projecting in front of the gables of the nave.

pipe (from 10 to 13 inches in diameter) to the organ-blower room, which also contains the fan motor. The blower room is often placed in the basement or off the narthex floor so that the noise of the motor will not affect the services, the singing or the music. It is well to take the air tempered for the organ from the body of the church (*e.g.,* from under the last pew), and convey it by duct below the floor to the blower room. A generous amount of space should be allowed for the various parts that go to make up the construction of the organ. If chimes are to be placed in the tower, room will necessarily have to be left for the chimes keyboard near the organ console. Electric conduits of sufficient amplitude

PLATE 143

The Interior

THE SAINTE CHAPELLE, PARIS, FRANCE

The Sainte Chapelle, Paris (Plate 34), belongs to the best period of Gothic art, and is genuinely Gothic in construction. In this chapel the walls are entirely suppressed, and the entire space between the piers or buttresses which carry the stone vaulted roof is filled with light stone traceries and exquisite glass. The lateral windows are 15 feet wide and 50 feet high. The East end is semicircular in plan. On the inside of the buttresses are placed canopied stone figures of the Twelve Apostles, each carrying a cross, and these serve as the consecration crosses for the chapel. The edifice was erected by St. Louis in 1244–47. The Sainte Chapelle and Amiens Cathedral are considered, both artistically and structurally, the two most nearly perfect of all Gothic structures.

should be built in the floor construction to take care of the organ and the chimes.

An echo organ is sometimes placed at the end of the church opposite the choir of singers, in which case there is generally a separate blower pipe and motor for it. The same machinery can be used, but this necessitates an expensive long run of blower pipe and wasted electric current when the echo organ is not being used.

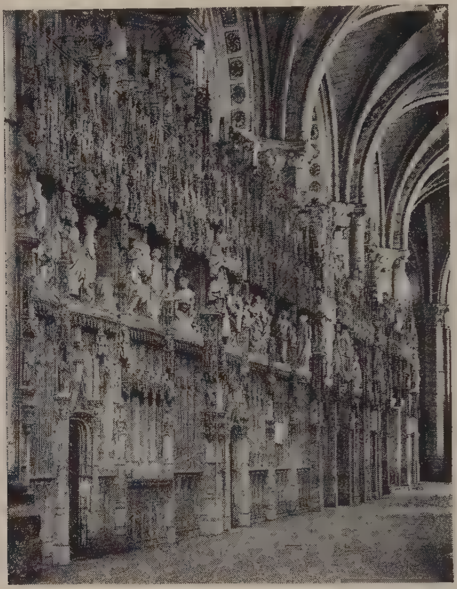


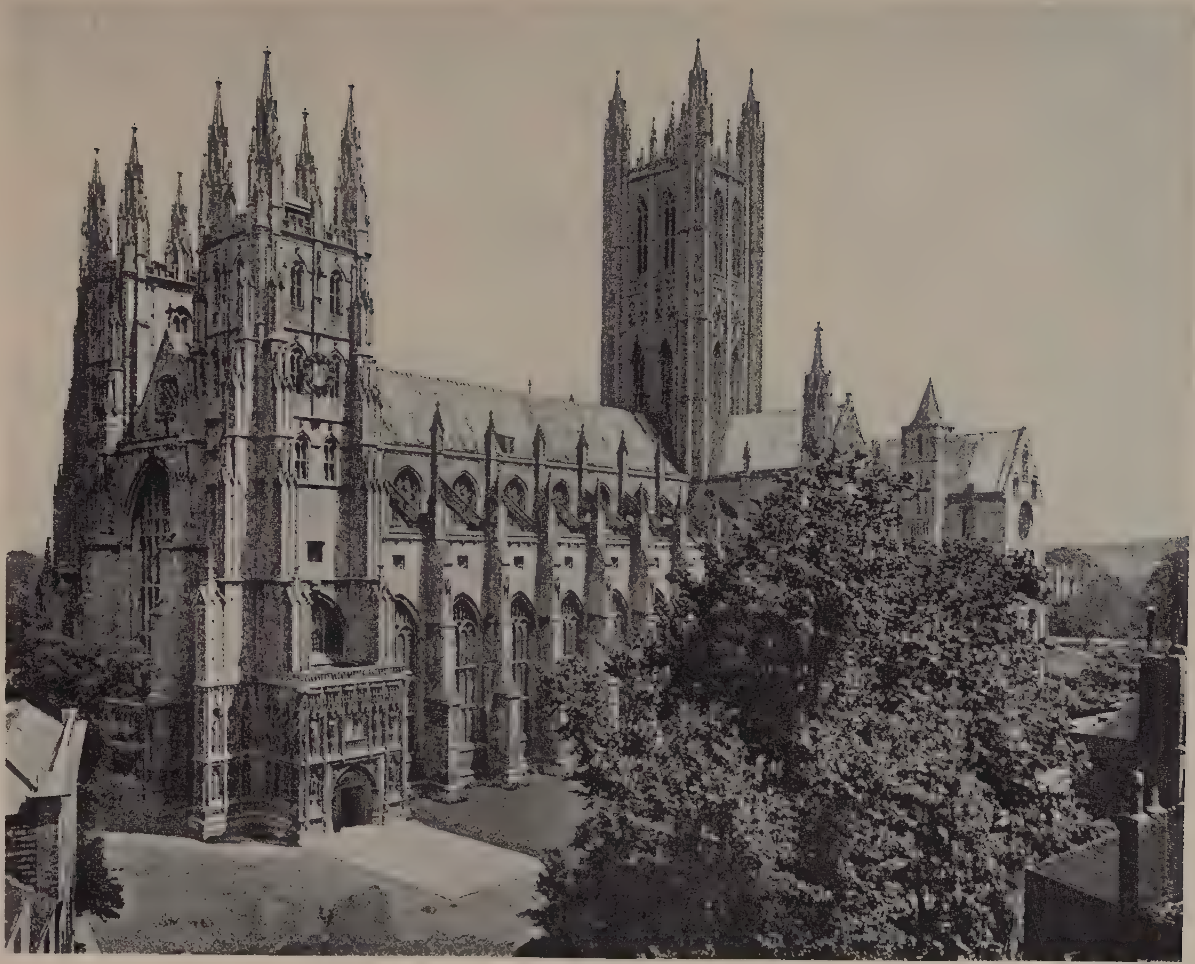
PLATE 144

The Screen around the Choir and the South Deambulatory

CATHEDRAL OF CHARTRES, FRANCE

This beautiful stone screen in Chartres is carried all around the choir. It is early sixteenth-century work, for in the details can be detected the beginnings of the Renaissance, although the composition and design in general are pure Gothic.

The Doors.—It has become customary in the northern climates of America to fashion doors very narrow and low so that they can be easily handled by the faithful and small children. This fashion often gives rise to very unhappily proportioned doorways, particularly on the fronts of our churches. There is no reason why the masonry opening itself cannot be made very generous for dignity's sake, allowing but a small portion



South-West View PLATE 145

CATHEDRAL OF CANTERBURY, ENGLAND

The choir of this church was built by William of Sens, a Frenchman, after the Norman Choir of St. Anselm was destroyed in 1170. The tower over the crossing is a singularly beautiful example of Late Perpendicular work. The plan has two transepts. One is at the crossing, and the other, which is of greater projection, is in the choir. The original Norman work remaining around the Eastern portion of the structure is of great interest. This church contains the Shrine of St. Thomas à Becket. It is worthy of note that the towers are without steeples, but, since the corner buttresses are crowned by lofty pinnacles, the absence of steeples is not keenly felt. On the whole, the composition is one of great simplicity and beauty.

of the woodwork (or metal-work, as the case may be) of the doorway to open.

It often happens that the attempt to squeeze three doorways (like those of a great medieval cathedral) under the central gable of the West front results in disaster. It is far better to have one great monumental doorway than three dwarfed ones. Generally more than one doorway is needed, but additional ones can be placed on the front at the ends of the side aisles, or on the ends of the narthex on the side elevations of the building.

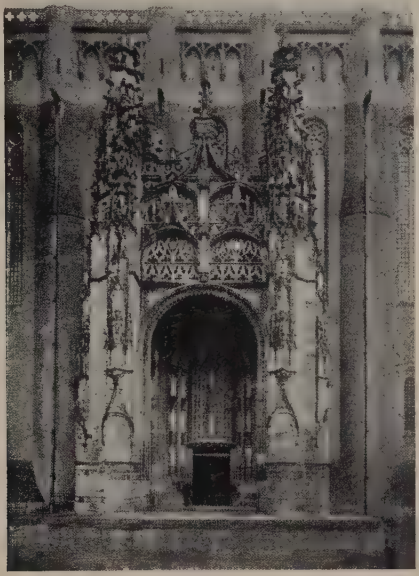


PLATE 146

The Entrance Porch on the South Side of the Nave

CATHEDRAL OF ALBI, FRANCE

To the Cathedral of Albi (Plate 130) belongs this Gothic porch, which was begun in 1379 and finished in 1410. It is built entirely of stone. Round arches are used in the porch in juxtaposition with obtusely and sharply pointed arches in the brickwork of the church walls. Aside from its handsome proportions, the great beauty of this porch is in a large measure due to the gentle gradation from its extremely plain base to the most exquisitely elaborated traceries, gables, crestings and pinnacles at the apex.

If there are no windows in the narthex, it is well to provide glass panels in the doors themselves, or perhaps glazed transoms can be fashioned above the doors, or, failing this, the tympani over the doorways can be pierced with interestingly shaped windows or transoms. Door checks are required on all outside and inside vestibule doors, but these need not be of the ugly exposed type. Floor hinges or the type of checks which show only an exposed arm at the head of the door, are to be preferred.

All doors that will stand out in the rain when opened should have a copper strip across the top edge, turned down about three-eighths of an inch on the inside and the outside to prevent the water from ruining the door. The practice of using false ornamental hinge plates on the outside of church doors should not be encouraged. If the hinge plates cannot be made part and parcel of the hinges, the ornamental plates had preferably be omitted. Care must be taken so that certain other doors (besides that leading from the sacristy to the sanctuary) are de-

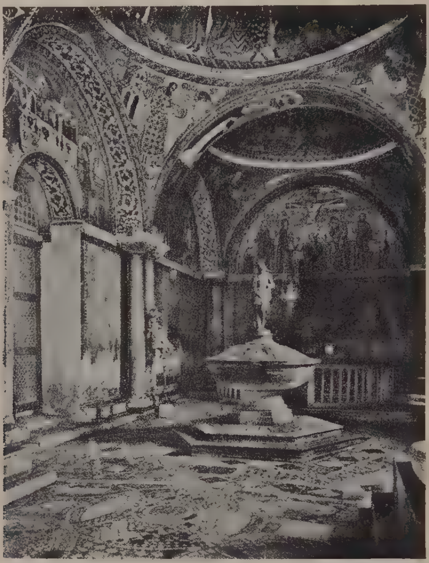
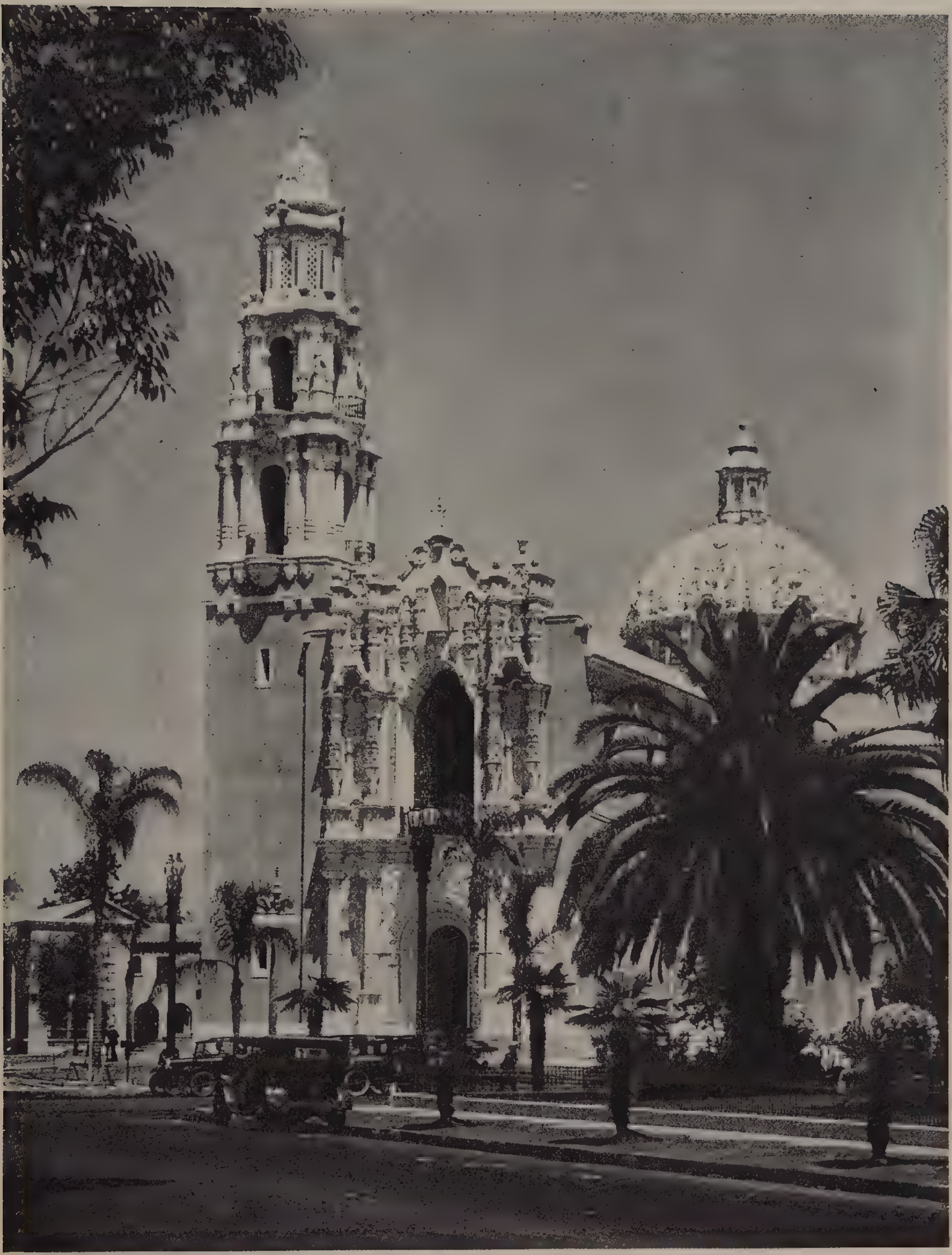


PLATE 147

The Baptistery

ST. MARK'S CATHEDRAL, VENICE, ITALY

Antique marble pillars, marble walls, mosaic spherical vaults on pendentives, and a marble floor in beautiful patterns help to make of this well-shaped hall a memorable sight. The font is circular with a hexagonal plinth, and rests on a hexagonal platform raised on two steps. This baptistery is about 25 feet wide and 45 feet long. Byzantine character and style are paramount in St. Mark's Baptistery as well as in all the other portions of the edifice.



(Courtesy of "The Western Architect.") PLATE 148

ST. VINCENT DE PAUL'S CHURCH, LOS ANGELES, CALIF.

(Albert C. Martin, Architect.)

signed with width sufficient to allow room for two persons walking abreast as in processions.

Vestibules with inside and outside doors should be arranged at all openings that form entrances to the church, but outside entrances to sacristies and so on need not always be equipped with them.

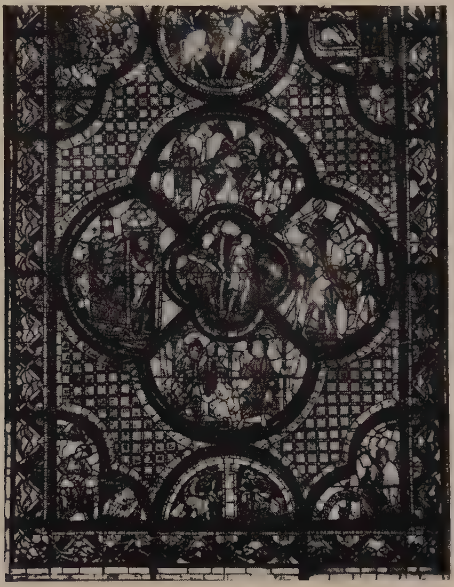


PLATE 149

Window of the Good Samaritan

CATHEDRAL OF CHARTRES, FRANCE

An example of the work of one of the world's most artistic schools of glass painting is here shown in this fine thirteenth-century medallion glass window. At the bottom of the window in the semicircular medallion are depicted the shoemakers, whose guild presented this *vitrail* to the Cathedral. The next medallion, directly above, shows Christ delivering the Parable of the Good Samaritan to the Apostles. The remaining medallions show the man leaving his city through the town gate, his meeting with robbers, his being despoiled of his clothes and deserted on the road, and his wounds being dressed by the Good Samaritan.

Fortunately the days of the narrow narthex, with golden yellow pine wainscoting and wood floor covered with matting, seem to be a thing of the past, at least in the case of churches of some pretensions. Nowadays the narthex of the church is apt to have, and should have, some dignity commensurate with its importance as one of the grand liturgical divisions in the church plan.

The Windows.—The windows in the church are of tremendous importance, because light attracts the eye, and the first thing we see upon entering a church is the glass. The size of the windows will be to a great extent determined by the style of the building. Churches of Romanesque or Byzantine type will have small windows. Middle and Late Gothic windows cover greater area than those of the very early Gothic periods. The cost of the building will be affected by the size of its windows, because good stained glass in large areas will cost more than the masonry it displaces. Large Gothic or other windows will make the building a trifle more difficult to heat in the winter.

Stained glass is used today in all Catholic churches. It is made with many small pieces of glass of different colors, all colored in the process of manufacture. The pieces are held together by small lead bars shaped down their length like the letter "H". The painting done on the glass is that necessary to delineate faces, hands, objects, letters, and so on. The painting is burnt into the glass in a kiln and this process of painting and firing must be performed twice; sometimes, indeed, it must be done thrice. In painting the glass, heavier trace lines should be used for windows that are to be placed at great heights than for those that come nearer to the eye, so that the former will be effective at the greater distance.

Care must be taken so that not too much drawing, hatching or strippling is done on any glass, for then the result will be a muddy and opaque glass. It is necessary to exercise great precaution in selecting your stained-glass maker. A fine sketch beautifully drawn does not necessarily mean that you will procure artistic stained glass. Everything depends upon the way the sketch is interpreted and carried out. The same sketch can bring forth a good or a bad window. The congregation is, so to speak, at the mercy of the stained-glass maker. Therefore, the best advice is to choose only the ablest artist, and place implicit trust in him.

CHAPTER VIII

ALTARS

WITHOUT the altar, there can be no Catholic church. The altar is, so to speak, the very soul of the church and its *raison d'être.* It is the culminating spot in the entire edifice, and in a well-designed church all matters of proportion, design, furnishing, and decorating are subordinated to the altar, towards which the soul of the worshipper is directed through mind and eye by means of the lines of the building, the curves of its arcades and groining, and the forms of its transept, chapels and apse. To place the altar elsewhere than in the center and at the Easternmost end of the church, is inconceivable. Upon the altar, as the stage whereon are daily reënacted the sacred mysteries of the Last Supper and Calvary, all attention must be focussed. Needless to say, in speaking thus, we have in mind the high or major altar, as all other altars in the church should be subordinated to it.

According to our best information, during the early ages of Christianity the altars were of stone, wood or metal. During the time of the very earliest persecutions, many were of wood so that the difficulty of transporting them from one place to another might be lessened. After the peace of the church had become a fact under the Emperor Constantine, Pope St. Sylvester (314-335) placed in the Lateran Basilica of Rome an altar of wood that had seen service during the trying times of the early martyrs, with the proviso that none other than the Pope could say Mass thereon. Some of the early wooden altars were in the form of coffers; that is to say, they were hollow. St. Augustine relates that St. Maximian, Bishop of Bagæ in Africa, was slain under an altar of wood which the Donatists pressed over his head. Wooden altars of this and subsequent times were often covered with precious materials (gold, silver and precious stones), and in the Church of Hagia Sophia in Constantinople there was an altar table of gold garnished with precious stones.

After the early Christians issued from the Catacombs and public places of worship multiplied, permanent altars of durable materials became more the rule than the exception; but, notwithstanding several edicts issued by the Holy See against wooden altars, the latter continued to be used at least in England down to the eleventh century. In the time of Charlemagne, priests were admonished not to say Mass except on stone altars consecrated by a bishop. This seems to indicate that wooden

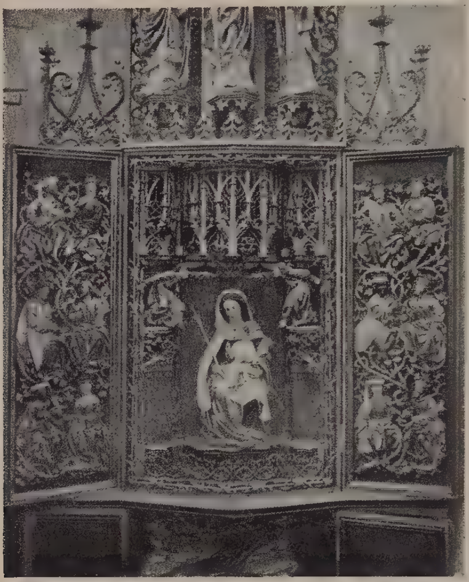


PLATE 150

Tree of Jesse Altarpiece

CHURCH IN BRAUNAU, GERMANY

An example of a triptych altarpiece in the Late Gothic style. In the center are Our Lady and her Divine Son, while on each side are Angels reaching across to support Our Lady's Crown. Elaborate tabernacle work is shown above the Crown and the Angels. Placed one on each side of Our Lady are niches for statues, but these are empty. The folding leaves of the triptych are divided into two stages—upper and lower. On the upper ones are seen carved figures in the Tree of Jesse. Crowning the whole are rich crestings, pinnacles and gables, while three figures (the upper parts of which do not appear in the illustration) surmount the whole and complete this masterpiece of wood carving. Note that the central portion comes slightly forward in the shape of a V. Gildings and rich color help to enhance the exquisite beauty of this remarkable work of German art.

altars were still in use, but after the ninth century they had fairly well disappeared.

Today in the Catholic Church, when a wooden altar table is used or when Mass is said in the open or on shipboard, a portable altar (or, in other words, an altar-stone) is employed. That such altars were in service from a very early period, is beyond question. In private chapels, on journeys, during war, and in countries where heresy was rampant, their use was always general. During the Middle Ages, on account of the difficulties of travel, it was quite impossible for the bishop of a diocese to visit all the churches and consecrate all the permanent altars. It thus became customary to use these small altar-stones, which could be consecrated at the cathedral of the diocese, and which were comparatively easy to transport. In the medieval period altar-stones were often objects of art, and some were decorated with precious stones and metals. The

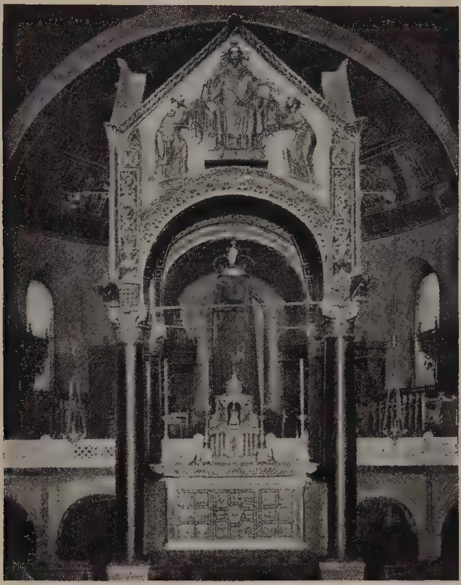


PLATE 151

Ciborium Over the High Altar

ST. AMBROSE'S CHURCH, MILAN, ITALY

This magnificent Lombard Romanesque ciborium is rich in beautiful carvings, and the four pediments over the like number of arches are filled with interesting figure sculptures in bas-relief. As was customary in those days, no two carvings are of like design.

great sapphire of Glastonbury was one of these highly ornamented altar-stones. The custom of placing the relics of two canonized martyrs in each altar-stone may probably be traced to the ordinance of Pope St. Felix (269–274), who directed that Mass should be said upon the tombs of martyrs. The original inspiration may have come from the well-known passage in the Apocalypse: "I saw under the altar the souls of them that were slain for the word of God and for the testimony which they held" (Apocalypse, vi. 9).

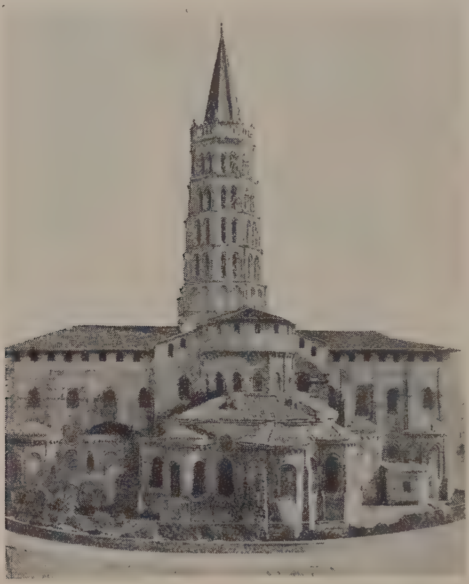


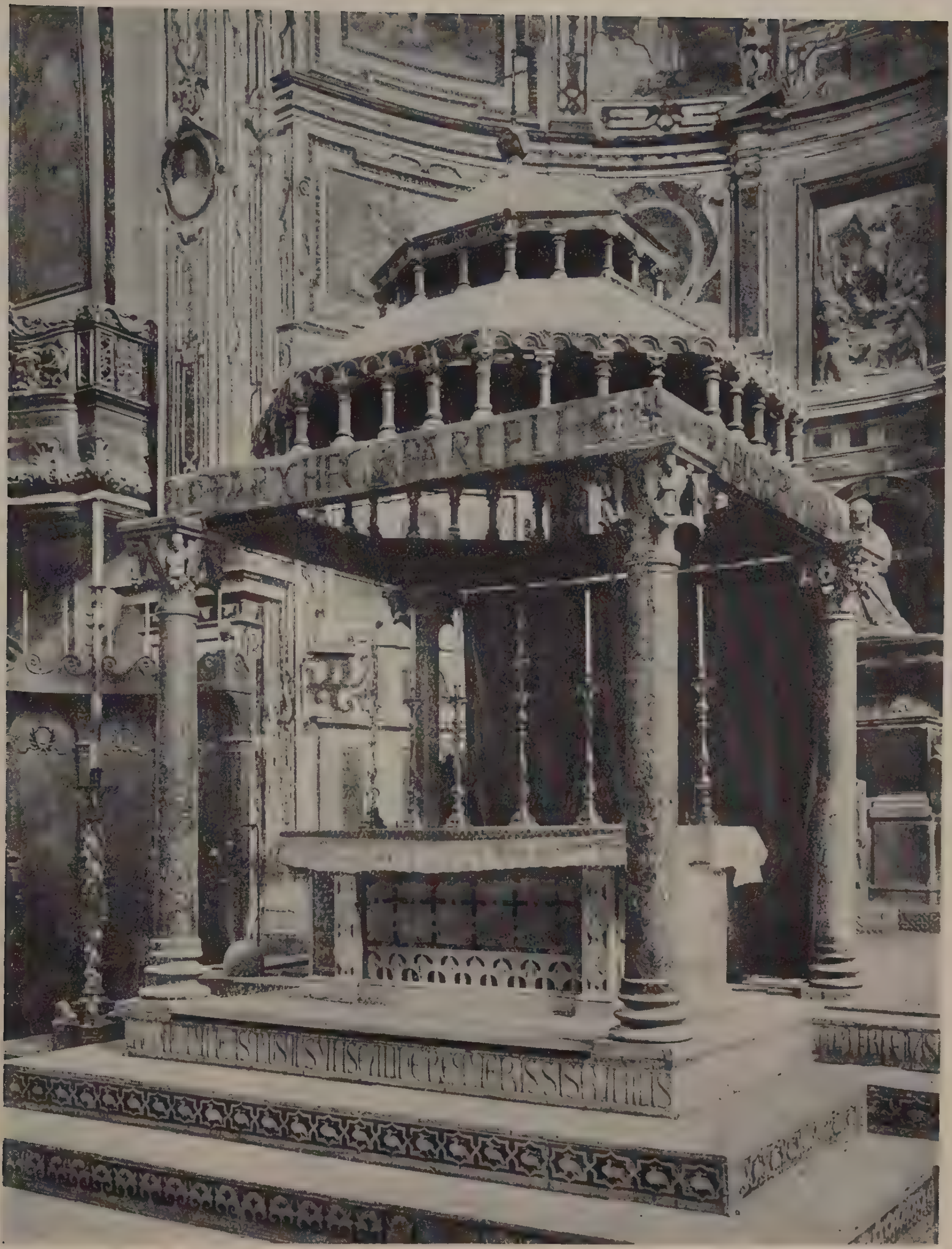
PLATE 152

View of Tower, Apse and Transept Chapels

CHURCH OF ST. SERNIN, TOULOUSE, FRANCE

This church is built on a cruciform plan with double aisles for the nave. The style is Romanesque of the year 1080, excepting the crossing tower, which is Gothic. The entire building is of brick. Over the nave is a round barrel vault, with square ribs directly supporting the slabs of the roof. A triforium extending over the inner aisle has large windows which light the nave. There is no clerestory, but the nave walls rise a little above the aisle roof. The church was originally part of an abbey. This illustration is shown principally to demonstrate that beautifully designed sanctuary ends were to be had in other days. So many of our churches today display a hit-and-miss architecture in the sanctuary end, which is, to say the least, inexcusable.

Altars that are comparatively short, as they must almost necessarily be to stand under ciboria, are more truly in keeping with the edict of



The Ciborium PLATE 153

BASILICA OF ST. NICHOLAS, BARI, SOUTHERN ITALY

This magnificent ciborium altar belongs to the Romanesque period of architecture. Except for the lack of the altar frontal and wooden predella, it is liturgically correct. The fronts of the altar-steps are beautifully carved, the first with foliated ornaments, the second with peacocks (the symbol of immortality and vigilance) enclosed in medallions, while the third is incised with an inscription in graceful uncial letters. The altar is carved and ornamented in varicolored marbles, while the candlesticks and crucifix are grandiose in scale and elegant in form and proportion. Note that the crucifix is on a candlestick base, which is correct according to the liturgy. Were a tabernacle to be placed on this altar, it would be liturgical to fasten it on the altar table directly in front of the crucifix, and it should be veiled. Four beautiful marble columns, with capitals of different design, support the ciborium, which is octagonal and in two stories of open colonnade work. A ball and cross, signifying the saving of the world by the Cross, crown the pyramided roof. An inscription is carved on the beams that carry the ciborium. Observe the hanging veil (or dorsal) to the back of the altar. Rods to carry other veils may be seen under the front and side beams. A fine Easter candlestick will be noticed at the Gospel side of the altar.

St. Felix. Altars of great length, like those of later medieval times, are too long to preserve the proportions of a tomb. The altar in Seville Cathedral (Plate 6), for example, was 17 feet long, while that in the Pope's Palace at Avignon was 14½ feet.

Notwithstanding the fact that the Holy Sacrifice of the Mass was to be celebrated upon the tombs of martyrs, the table form of altar with supports (or *stipes*) continued to be used, so that a great many altars became a sort of combination. The four walls, as in a tomb, enclosed solidly the spaces between the supports from floor to table top. In other words, in the construction of the Christian altar, the idea of the Last Supper Table was combined with that of a martyr's tomb. That none but stone-pillared altars should be consecrated with holy chrism, was ordained by the Council of Epaon in the year 517, and thenceforth two,

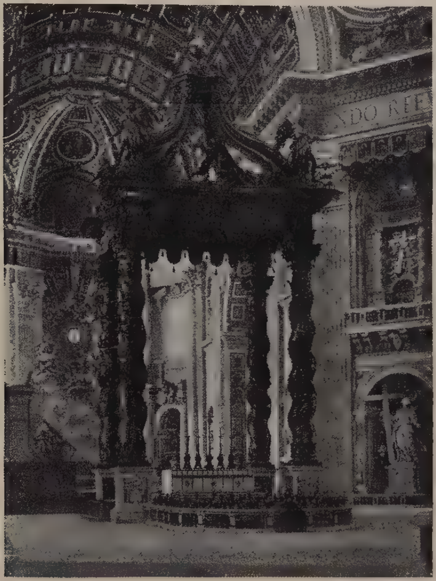


PLATE 154

The Ciborium

ST. PETER'S BASILICA, ROME

The ciborium of St. Peter's is the largest ever built, and measures 100 feet in height. It is the work of Bernini (1598–1680). The twisted pillars, as well as the sumptuous superstructure with its figures, are of bronze, while the pedestals are of marble. Underneath the altar is the "Confessio," which contains the tomb of St. Peter.

three, four, five or six pillars or *stipes* supported the altar table. The regulation today requires two solid end supports or otherwise four corner supports under the *mensa* (table-top). There may be additional supports, but at least the first-named two or four must function, and they must be of stone.[1] Since it is customary today to place the relics for the altar in a small rectangular sepulchre (only 2½ inches wide, 3½ inches long, and 1½ inches deep) sunk in the *mensa,* the lower part of the altar is often left open giving the effect, not of a tomb, but of the Last Supper Table only.

(Edward J. Weber, Architect.) PLATE 155
(Stained Glass by George W. Sotter.)

SACRED HEART CHURCH, BLUEFIELD, W. VA.

In early times the altar was extremely simple, without gradines or reredos. All accessories were placed around the altar but not on it, for the table was considered too sacred save for carrying the Holy Oblation. The Holy Sacrifice of the Mass was a mystery so profound and awesome that it was felt that it had to be screened from the faithful from the time of the Offertory until after the Communion. Hence veils were

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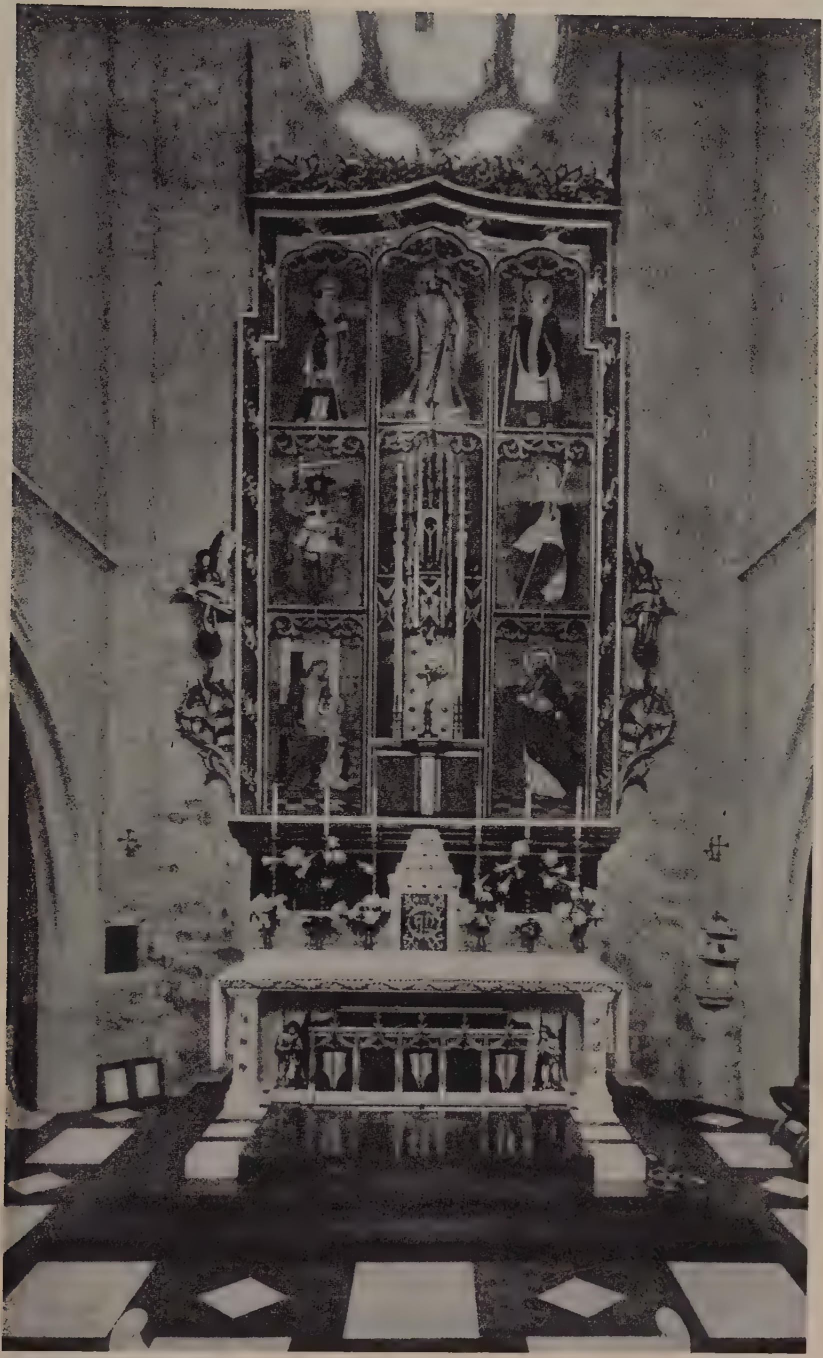
[1] For a full discussion of the canonical regulations regarding the composition of the Christian altar, see *The Homiletic and Pastoral Review,* XXVI, 261 sqq. (December, 1925).



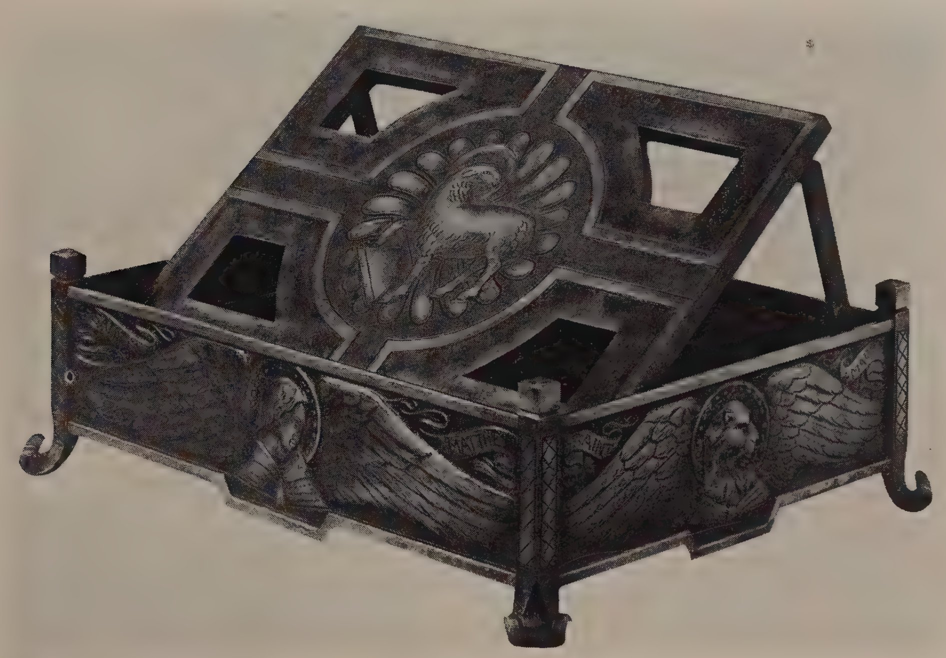
(G. Gilbert Scott, Architect.) PLATE 156

Altar and Reredos (Modern)

ST. JOSEPH'S CHURCH, SHERINGHAM, NORFOLK, ENGLAND

used on all four sides, and these were draped from rods supported on four pillars.

As a canopy or baldachino was then universally employed as a mark of honor above the thrones of princes, it was but fitting that the King of kings should above all be thus honored. With this thought in mind, the four pillars were brought into play to support a canopy of honor, and thus originated the ciborium altar. The use of veils on all four sides was not of any long duration in the Latin Church, but the use of back and side veils remained. This custom is being revived today, and is represented, it must be admitted, by some very exquisite examples. With the disappearance of the enclosing veils in the Latin Church, the ciborium itself gradually disappeared, except in some of the old basilicas of the South. In the North where the Gothic altar was developed, the two veils at the sides, called riddels, were retained, while the reredos took the place of the back veil (called the dorsal).



(Executed by Rambusch.) PLATE 157

Missal Stand

ST. ALOYSIUS CHURCH, CLEVELAND, O.

In the Greek Church the *iconostasis,* a solid screen, shuts off entirely the view of the altar from the people during the most solemn part of the service. In the Latin Church of the medieval period the nearest approach to the Greek *iconostasis* was used in the ancient Sarum Rite of England before the schism of the sixteenth century. From the first day of Lent until Good Friday, a great white curtain was hung across the sanctuary, concealing the altar entirely from those in the choir and nave. At the words in the Passion: "And the veil of the temple was rent in the midst," the curtain was divided and drawn aside.

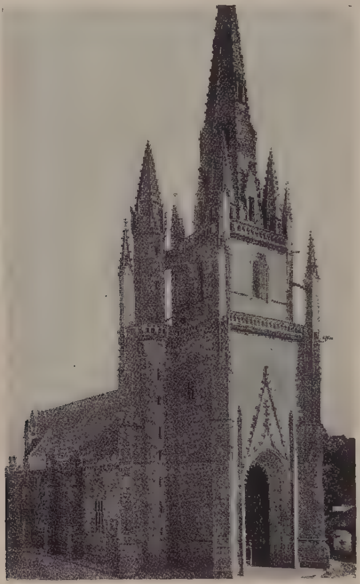


PLATE 158

North-West View

NOTRE DAME DU PARADIS, HENNEBOUT, FRANCE

This fine Gothic church has a massive central tower provided with a partly free-standing stair turret. The connection from the turret to the tower at the base of the steeple is made by means of a bridge. The church has no clerestory. Some idea of the size of the beautiful doorway may be gained by regarding the tiny windows that light the winding staircase in the stair turret.

In the sixth chapter it was stated that the clergy centuries ago sat on each side of the bishop against the apse wall, and we have seen that the altar-table was devoid of candle-steps and tabernacle. At first the tabernacle was often a hanging pyx in the shape of a dove suspended over the altar. Later, it became customary to place ornaments (such as the Cross), additional candlesticks and tabernacles (containing relics of the Saints, repositories, images, etc.) on the altar-table, until the altar became overburdened to such an extent that protests were made by the bishops. The legend runs that, when the miraculous statue of St. Walburga was placed on the altar-table in the Abbey Church of Cluny, the miracles ceased. Upon its removal, the miracles were resumed, and, as told by St. Walburga to one of her suppliants, the reason was that the altar should be reserved exclusively for objects pertaining to the Holy Sacrifice.

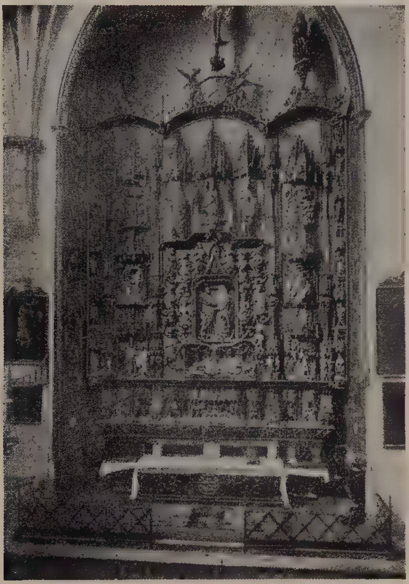


PLATE 159

St. Ann's Chapel

CATHEDRAL OF BURGOS, SPAIN

Burgos Cathedral (Plate 7) contains many chapels and many beautiful altar-pieces, but that here illustrated must be classed among the loveliest. The reredos—or, as the Spanish call it, the *retablo*—is designed in the Late Gothic style of the fifteenth century. It contains a Tree of Jesse, and the three segment arches at the top tether the composition and at the same time serve to carry a crucifixion group of Our Lord, Our Lady, and St. John. The upper portion of the figure of Our Lord is not seen in the illustration.

The development of the elaborate examples of reredos which have come down to us, is very interesting. It happened in this fashion. About the ninth century, on account of the growing veneration of the relics of the Saints, it became customary to place the sarcophagus containing the relics of the Patron Saint of the diocese or those of a greatly revered martyr (formerly placed under the altar-table) at the back of and high above the altar. There the sarcophagus was more prominently in view of the faithful, and could be seen without passing in front of the altar.

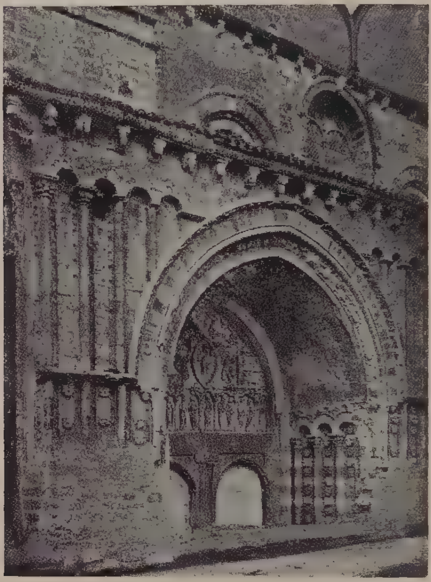


PLATE 160

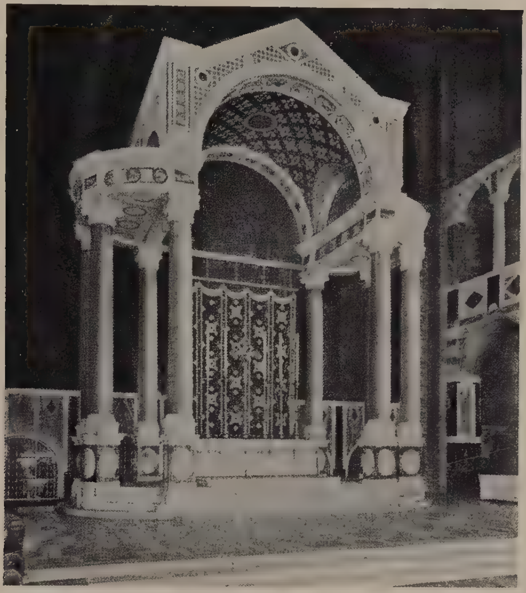
The North Portal

CATHEDRAL OF CAHORS, FRANCE

The masculine vigor of the Romanesque, twelfth-century work is apparent in this noble example. One of the outstanding features of the doorway is the obtuse point on the arch, signifying an approach towards the beginnings of Gothic.

The sarcophagus was placed at right angles to the altar, one end being supported by brackets in the apse wall, while the other end rested on the *mensa.* The desire of the faithful to walk under the body caused the sarcophagus to be raised, thus necessitating a support resting either on the altar *mensa* or on the floor at the back of the altar. Furthermore, it was felt desirable to close the space between the bottom of the sarcophagus and the top of the altar-table with a sort of screen or low reredos. Occasionally the canopy or baldachino was removed from the altar and placed over the sarcophagus or shrine. Flights of steps were often arranged leading up to the sarcophagus on one side and down from it on the other, so that the suppliant might touch the reliquary with the sick or diseased member or portion of his or her body. These ingenious arrangements often gave rise to compositions of great beauty of design, proportion and decoration.

Pilgrimages to some of the great shrines brought great hosts of the sick and ailing. It thus became desirable to move the altar forwards to give more ample space for the pilgrims. When this was done the sarcophagus remained against the back wall at the church, and the screen or low reredos was kept upon the altar so that the pilgrims might be screened off from the clergy in the choir and the people in the nave.



(J. F. Bentley, Architect.) PLATE 161

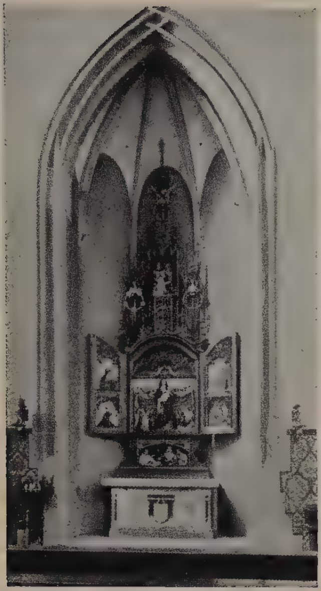
The Ciborium Altar (Modern)

WESTMINSTER CATHEDRAL, LONDON, ENGLAND

As may be easily imagined, when the custom of having the relics of the Saints above the altar ceased, the artists had become very fond of such interesting embellishments high above the altar. It appears that inspirations from these brought an increasing desire for greater height in the reredos to compensate for the loss of the reliquary or sarcophagus, canopy, stairways, etc., at the back of and high above the altar. As time went on and art became more luxurious, the reredos became higher, wider and more elaborate, until it reached its culmination in the cathedrals of Seville and Winchester.

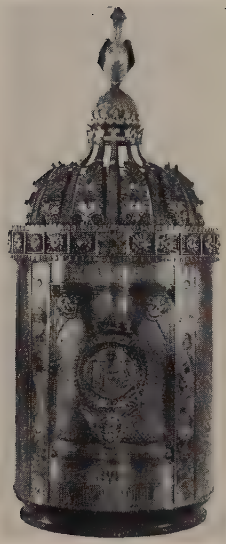
In itself, the altar is more or less inconspicuous in size, when compared to the entire composition called the church. Indeed, as previously stated, when altars other than stone or marble are built, the altar strictly so called is but a tiny block of stone (*i.e.,* the altar-stone), about two inches thick and twelve inches square. Even in its greatest dimensions, when built monumentally and of stone or marble for the purpose of consecration, the altar proper is never more than three and one-third feet high, from two to four feet deep, and rarely more than from eight to twelve feet long. Thus, it follows that, if the altar is to challenge due attention, its insignificant size must be glorified by means of man's art and handiwork, so that it may somewhat express its hallowed purpose. For the altar signifies Christ Himself (*altare sanctæ Ecclesiæ est Christus*); and the altar is made of stone because, according to St. Paul (I Cor., x. 4), "the rock was Christ."

To realize this aim of making the altar the dominating object and focal point in the church, has taken centuries of time and the combined efforts of some of the world's greatest architects, goldsmiths and painters. Let us consider the construction of our altars of today. They are raised upon steps—three for high altars, five for a cathedral high altar, or sometimes, though very rarely, even seven steps are used. One step only (*i.e.,* the predella) may be used for side altars. Other means are also employed to draw attention to the altar. Among these are the tabernacle, crucifix and candlesticks—the last being sometimes placed on a candle-step (or gradine). Yet, all of this does not suffice (at least, not in a church of some pretensions), and accordingly it has become customary to introduce in addition a framework or setting for the altar which may take the form of a reredos, ciborium, baldachino, tester, canopy, triptych or dorsal. To choose wisely from among these various schemes of altar settings, it is obvious that one must take into consideration the impor-



Altar of Our Lady (Modern)

ST. PAUL'S CHURCH, COLOGNE, GERMANY

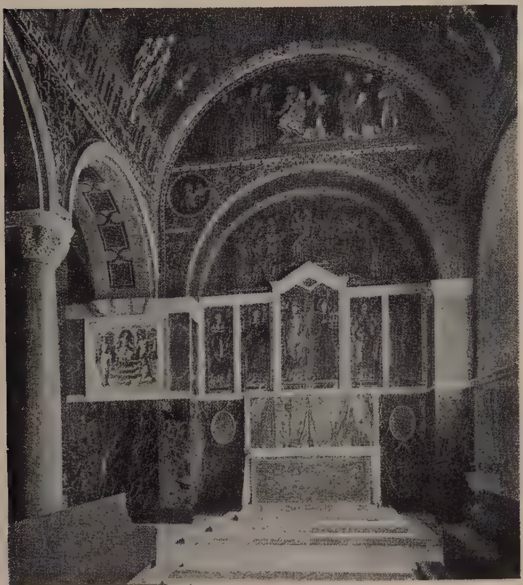


(Executed by Rambusch.)

Tabernacle on High Altar

ST. MICHAEL'S CHURCH, JERSEY CITY

(Wilfred E. Anthony, Architect.)



(J. F. Bentley, Architect.)

Chapel of Sts. Augustine and Gregory (Modern)

WESTMINSTER CATHEDRAL, LONDON, ENGLAND

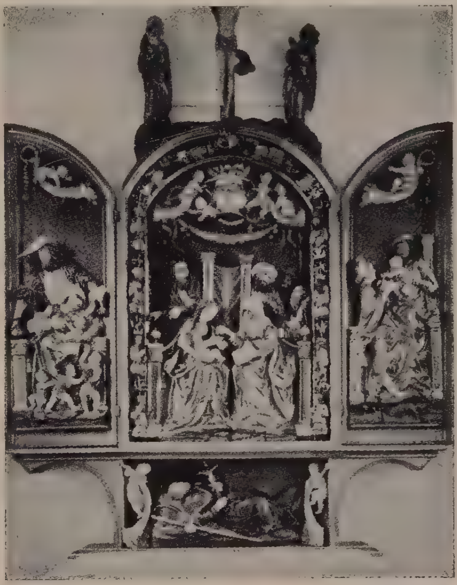


PLATE 162

ALTAR OF A CHURCH IN BIESELBACH, GERMANY

tance, size, splendor, and style of the particular church or chapel in question. At all events, no matter what scheme is selected, the altar and its setting should be made as large, beautiful and splendid as consistency and good taste will allow. And, while sincerity of design and construction should obtain throughout every edifice, and particularly throughout every Catholic church edifice, the altar itself should be the last place of all to harbor anything meretricious in its construction or composition.

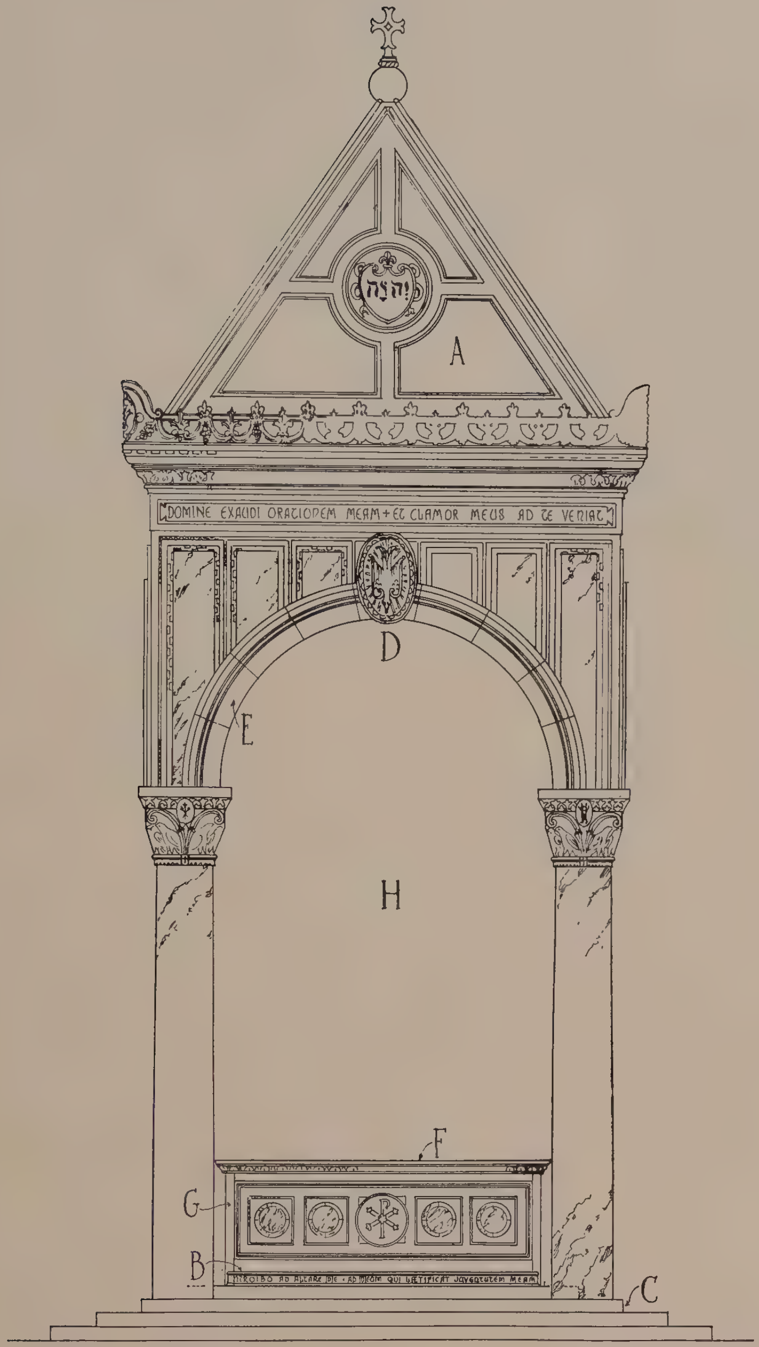
Among other things, for example, it is ordained that the consecrated altar shall consist of the *stipes* (*i.e.,* supports) and *mensa* (*i.e.,* table top). The spirit of the law is violated, although not the letter, when a solid block of marble or stone is used for the altar table, because when it is used you must still keep the *stipes* or table top supports or legs, which then become mere feet or stubby blocks violating the spirit of the law. And the *mensa* or table top is surely a misnomer if it is from thirty-two to thirty-six inches thick. It is the mind of the Church to have a table, and a table has high legs and a comparatively thin top; consequently, the solid block altar which has just the reverse is a deception.

The Reredos.—A reredos such as those in some of the English or Spanish churches and cathedrals covers the entire East wall of the sanctuary. Except in rare cases, the available funds will hardly permit magnificent altarpieces of this type today. However, a very beautiful reredos can be designed on less pretentious lines. Traceried and canopied niches with their statues, arches carved and richly molded, beautiful paintings and fretwork of intricacy and daintiness, gilded crucifixes and candlesticks, embroidered altar frontals, and lastly but most important of all the center of interest, the bejeweled tabernacle—the "tower of ivory," the "house of gold"—bring into one grand synthetic harmony an altar and setting of the reredos type.

The Ciborium.—If the scheme chosen be a ciborium (which is, correctly speaking, a free-standing canopy covering the entire altar and predella and supported on columns or piers), the columns may be of rich marble with carved caps, arches and cornice, and the whole may (if funds permit) be crowned by a pyramid, either solid or of open tracery or fretwork. Curtains and a dorsal of rich fabrics and embroidery, hung from rods supported from column to column as previously noted, are beautiful and appropriate.

Ideal Ciborium.—Keeping in mind some of the fine ciboria that rise above the high altars in such churches as S. Apollinare in Classe at Ravenna, St. Ambrose's at Milan (Plate 151), and S. Lorenzo fuori le Mura, S. Giorgio in Velabro, and S. Clemente at Rome, let us picture to ourselves an ideal ciborium altar of today designed along their lines. By its monumental quality, its magnitude and gorgeousness without even a hint of tawdriness, this setting should express the holy character of its function. Such an altar should be raised upon five easy steps (including the predella), each about five inches high, with treads of sufficient depth to insure comfortable standing room for the sacred ministers. Four of these steps should be of marble, while the predella remains of wood in accordance with St. Charles Borromeo's "Instructions on Ecclesiastical Building." St. Charles' instructions to this effect are not often followed today, but examples are to be found in the Church of St. Francis at Assisi (Plate 200). The predella stops against the marble altar, of which the front, sides and closure wall descend below the predella to the uppermost marble step. Four steps of light Botticino marble form a stylobate for the superstructure. The predella will have a molded nosing and base strip, and on its riser the inscription: "Introibo ad altare Dei. Ad Deum, qui lætificat juventutem meam," surrounded by an ornamental border (all being designed in beautiful inlaid woodwork). The floor of the predella will be marquetry work of teak wood.

The ciborium itself is supported by four monolithic, turned and entasized shafts of Fior de Pesco marble, resting directly on the stylobate as in Greek Doric temples. The omission of bases from the columns is an added advantage, for it allows more room for pontifical ceremonies. The capitals of these columns will be of Rose Tavernelle marble, profuse with carvings of symbolical birds, emblems and leaves. Resting directly on the massive abaci of the capitals, without the intervention of impost or cornice, will be the four archivolts. These archivolts aid in sustaining the mosaic vault, which is spherical in form and contains on its surface, in antique style mosaic, a representation of God the Father with a phylactery containing the words: "This is My be-


יהוה
A
DOMINE EXAUDI ORATIONEM MEAM + ET CLAMOR MEUS AD TE VENIAT
D
E
H
F
G
B
INTROIBO AD ALTARE DEI · AD DEUM QUI LAETIFICAT JUVENTUTEM MEAM
C

(Edward J. Weber, Architect.) PLATE 163

PLAN FOR IDEAL CIBORIUM ALTAR

A, pyramid; B, predella; C, stylobate; D, ciborium; E, archivolts; F, mensa; G, stipes; H, dorsal.

loved Son in Whom I am well pleased; hear ye Him." Lights placed at the top and back of the two front columns will give sufficient illumination for both the celebrant of the Divine Mysteries and the mosaics of the dome. The Third Person of the Blessed Trinity will be represented by an exquisitely chiseled dove in a panel over the front arch. Spreading above the four arches are panels with fields of Jasper du Var marble, separated by Rose Tavernelle bands inlaid with marble mosaic strips one inch wide composed of Belgian black, yellow Siena, and polished white statuary marble. Across the tops of the panels will also be found the same mosaic band. A frieze of black and gold marble will carry around the ciborium above this point, on which is incised in gilded letters: "Domine, exaudi orationem meam. Et clamor meus ad Te veniat." A molded and carved projecting cornice of Rose Tavernelle rises above this point, crowned by a pinnacled and fretted cresting with alternating grape clusters and vine-leaves. Large carved medallions containing stalks of corn and sheaves of wheat lend interest to this cresting at the corners.

The composition of the altar-table itself will be somewhat as follows: Jasper du Var marble forms the *mensa,* which has a molded edge. Plain Convent Siena marble will be used for the front, sides, *stipes* and closure wall of the altar-table. Five panels—four small and one large—divide the embroidered altar frontal which is prescribed by the rubrics, the center panel of which contains the Greek monogram of our Lord. The remaining panels are filled with embroideries of symbols that pertain to the Blessed Sacrament, and a rich border surrounds the whole. On the altar-table are found no gradines or candle-steps, and the candlesticks with the tabernacle rest directly on the *mensa.* The tabernacle is literally a round, domed "Tower of Ivory," trimmed with gold and other precious metals and inlaid with jewels. The apex of the tower is graced by the pelican piercing her breast to nourish her young with her life's blood—a symbol of Christ in the Blessed Eucharist. The tabernacle as ordained is covered entirely by the veil and not even a glimpse of the door is permitted. Directly back of the tabernacle and resting on the *mensa* is the crucifix—*in medio candelabrorum,* that is, directly in line with the candlesticks. It stands on a base about the height of the candlesticks, and is proportioned in such a manner that the feet of the *corpus* will be above the tops of the candlesticks and the flame of the candle will be below the top of the Cross. A ciborium, as just described, could be embellished beautifully with the proper kinds of rich dorsal and hangings.

Dorsal, Etc.—Where lack of funds renders the reredos or ciborium altar out of the question, a fine effect is often produced by the use of the dorsal and riddels. The dorsal—or, as it is sometimes called, the superfrontal—can be made of alternating vertical strips of plain and rich fabrics and brocades, and it can be hung from a projecting canopy of wood molded and enriched. Embroideries can be used on the fabrics.

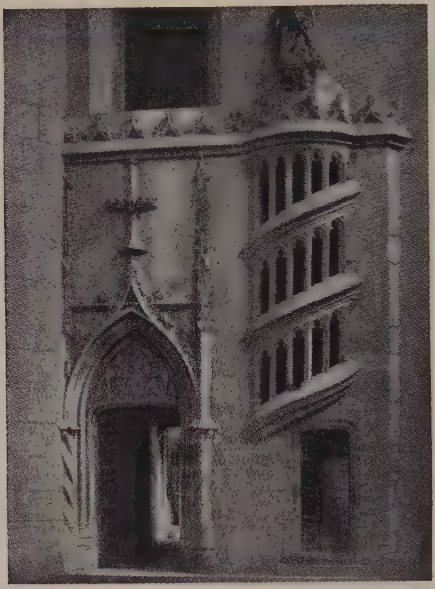


PLATE 164

The Canons' Door

CATHEDRAL OF NEVERS, FRANCE

This most interesting detail manifests the style of the fifteenth century. The smaller of the two doors leads to the circular stairway, with its pierced traceries bulging out from the stone wall in a most unique manner. Evidently, the latter was done to obviate the necessity of weakening the heavy wall too greatly in making room for the stairs.

Combinations.—Occasionally, one finds settings for the altar composed of a combination of reredos and riddels, or of dorsal and riddels. Riddels are curtains of rich but light-weight fabrics hung on each side

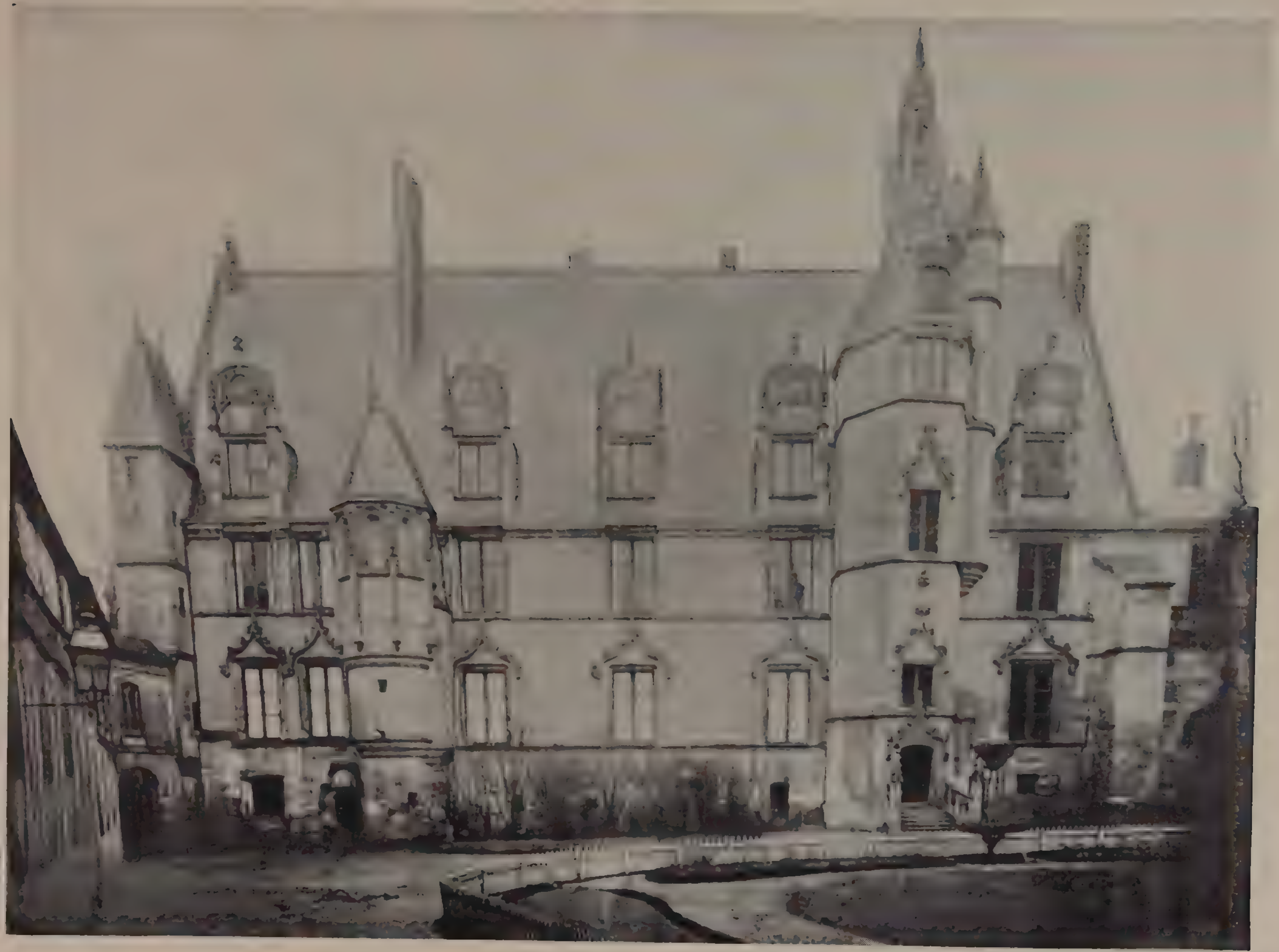
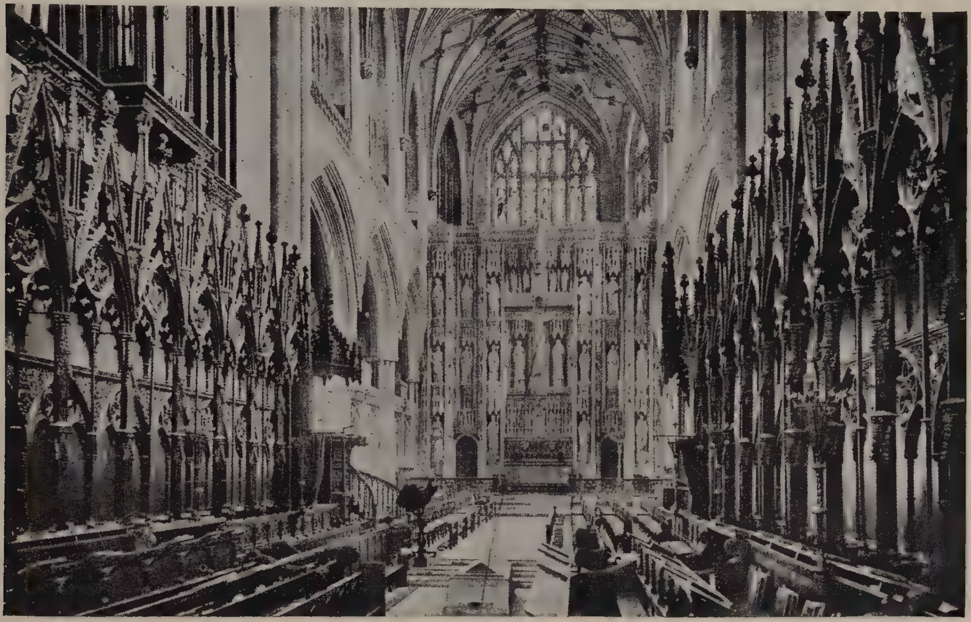


PLATE 165

THE ANCIENT PALACE OF THE ARCHBISHOP, BEAUVAIS, FRANCE

This building, which is entirely of stone, is constructed in the fifteenth-century Gothic manner. The chapel is in the second story at the left of the picture.

of the altar at right angles to the East wall, and supported on iron rods which are secured to the wall or to slender vertical posts called riddel posts. The posts can be carved, gilded and enriched, and they sometimes support images of angels holding candles or emblems and instruments of the Passion.



The Interior PLATE 166

CATHEDRAL OF WINCHESTER, ENGLAND

This view shows the choir stalls and the great stone reredos—the latter probably the finest of its kind in the world. Winchester has a length of 560 feet, and is thus the longest medieval cathedral in Christendom. The tower and the transept are Norman, and date from 1070–1107. The nave and choir are also in the Norman style, but belong to a little later period. William of Wykham and his successors placed a Perpendicular English style of veneer on the Norman nave and choir (1394–1486). The Perpendicular vault of the nave is of stone, but the choir vault is of wood. The choir stalls are in the Decorated style of the fourteenth century, and the retro-choir is the largest in England. Beauty of proportion, length of nave, and fine groining of the vaults lend distinction and impressiveness to this great cathedral interior. The choir is dedicated to St. Swithin.

The Triptych.—Triptych settings for altars (see Plate 150) can be of very great beauty. In churches of large dimensions, they are most generally used for side altars. A triptych is a reredos about as wide as the altar is long, with two hinged doors or shutters that perform the function of closing off the view of the reredos' pictures, statutes, etc., during Passiontide. Frequently, the shutters are each divided into two or more leaves held together by hinges. In some cases, the reredos is decorated with paintings of sacred scenes and personages, but the shutters themselves on the inside are usually only painted with symbols and powderings and diaper work. In comparison to the whole, the shutters on the outside are generally quite plain and usually are without paintings, carvings, imagery, etc. However, there are some types of the triptych which contain carved Saints and examples of iconography in alto- and bas-relief, or a combination of paintings and carvings, but seldom are the doors themselves overburdened with carvings. The termination for the triptych is in a gable or other high form with a pleasing silhouette, and it is often surmounted by a cross. The superstructure can also be made effective with canopied and enriched niches containing figures.

Testers, Etc.—For suspending testers and canopies bronze wires can be dropped from the vaults or ceilings, or ornamental chains can be used, as seems most becoming. Iron, wrought into ornamental shapes, can be made to function as supporting brackets, while copper, wood or other materials carved, gilded and decorated, are equally suitable. The canopies themselves are generally of wood, and can be enriched to any extent consistent with good taste and available funds.

It is obvious that to make a work of art there must be an exact and correct relation between all the component parts. Hence, if success is to be assured, the altar and its setting must be designed to conform to its various parts, and, first of all, to the length of the altar-table. The height of the predella and the size of the reredos, baldachino, etc., must have the added quality of being in correct proportion to the size of the sanctuary in particular, and of the church in general. The decorative splendor of the altar, as well as its bulk, must conform to those things in the church which are in juxtaposition, but, as intimated above, the altar and its setting should be the *pièce par excellence*—the cynosure of all eyes in each and every church.

CHAPTER IX

PULPITS, CONFESSIONALS, ROOD, CREDENCE, STATIONS OF THE CROSS, ETC.

IN very ancient times the priest preached from the altar steps, and later the *ambo* was used for preaching. The pulpit is an appointment comparatively modern, and by some its introduction is considered contemporaneous with Sts. Francis and Dominic (cfr. *The Homiletic and Pastoral Review,* August, 1927, pp. 1186 sqq.).

Pulpits of the early Friars' time were usually set well out into the nave, but this position becomes awkward today, for we use, almost exclusively, fixed pews for the worshippers who face the altar, whereas in remote times the faithful usually stood, and could at will turn towards the preacher wherever he might be placed. However, in our large churches it sometimes becomes necessary to place the pulpit on the second or third column of the nave, or on the North-West corner of the crossing. When this is done, those in the front pews cannot face the speaker unless the pews are equipped with reversible backs. The awkwardness arising from two sections of the congregation facing one another, and from the worshipers in the Easternmost section having their backs turned towards the altar, results when the reversible pews are used.

The pulpits of pre-Reformation days were usually hexagonal in plan, but octagonal shapes were also to be found. Some pulpits were extremely narrow; in fact, the oldest known wooden one in England, dating from the middle of the fourteenth century and still in use at Mellor in Derbyshire, measures only thirty-two inches across. It is now customary to make them a little more generous in diameter, and it is well to have them not less than thirty-eight inches inside.

Care must be exercised to avoid any dangerous arrangement of steps at the entrance to the pulpit, particularly at the top where the step should be a few inches outside of the interior line of the pulpit so that the priest will not fall in case he should step backwards.

Pulpits must be placed on the Gospel side except in cathedrals, where they are placed on the opposite side of the church. In a large church it is well before deciding the exact position for the pulpit to experiment with a temporary make-shift pulpit or box of wood or other light material in order to find the exact spot and height from which the preaching can best be heard. The pulpit should, for acoustical reasons, be against a wall or pier.

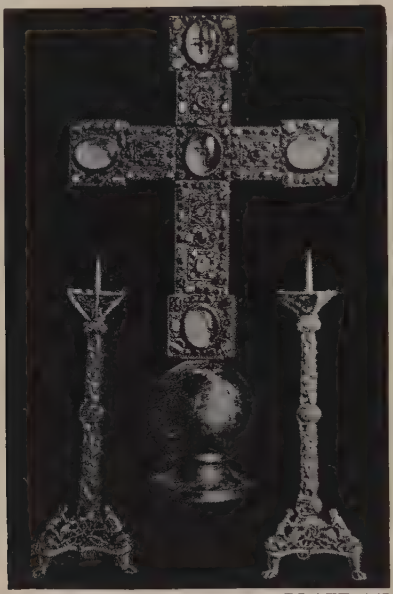


PLATE 167

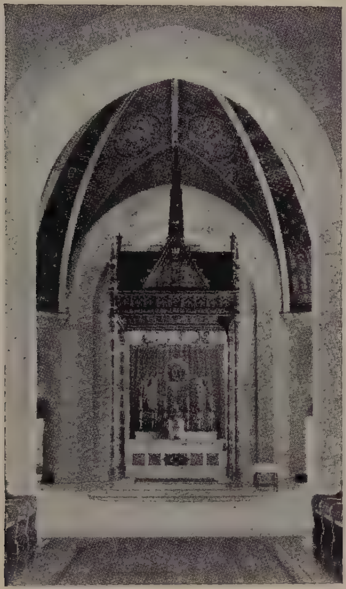
ST. BERNWARD'S CANDLESTICKS AND CROSS, HILDESHEIM, GERMANY

We would do well to try and emulate the spirit of these beautiful altar ornaments still preserved in Hildesheim, Germany. They are the work of St. Bernward, Bishop of Hildesheim, who passed away in 1022. As a boy, he studied in the cathedral school of Heidelberg, and became proficient in the arts of painting, architecture, and the making of ecclesiastical plate and ornaments. He became Bishop of Hildesheim in 993, and held that see for nearly thirty years. After his episcopal duties of the day were over, he was wont to visit the ateliers of his school (for schools were attached to nearly every cathedral in those days), and there with his own hands he would fashion altar ornaments. Other works still preserved at Hildesheim as witnesses to his ability are a pair of bronze doors in the Hildesheim cathedral and the Bernward Column, covered with reliefs (in winding formations) of scenes from the life of Christ. St. Michael's Abbey Church in Hildesheim, a beautiful basilica, is a monument to Bernward's zeal and architectural skill. He was canonized in 1193.

The edge of the parapet around the pulpit should be level, and at least from four to six inches wide; this affords a rest for the books.

A great many of the beautiful pulpits in Spain are made of metal, as that country is the land *par excellence* of metal craftsmen.

Inscriptions carved around the pulpit are indeed appropriate, and afford fine decorative motives. The words of St. Paul from the First Epistle to the Corinthians (xiv. 8): "For if the trumpet give an uncertain sound, who shall prepare himself to the battle?" or the following verse from the same Epistle (xiii. 1): "If I speak with the tongues of men, and of angels, and have not charity, I am become as sounding brass, or a tinkling cymbal," and other such inscriptions are very fitting.

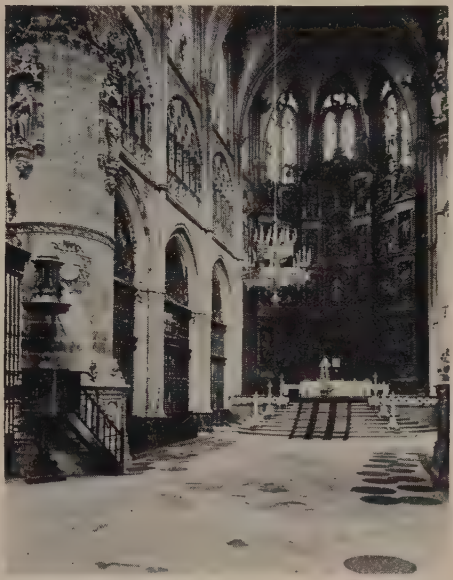


(Courtesy of "The American Architect.") PLATE 168

The Ciborium

HOUSE OF GOOD SHEPHERD, TROY, N. Y.

(Altar and Decorations by Rambusch.)
(Morgan and Milliman, Architects.)



(Photograph by Ewing Galloway, N. Y.) PLATE 169

The High Altar

CATHEDRAL OF BURGOS, SPAIN

The Cathedral of Burgos (Plate 7) contains fifteen fine chapels, forty altars, and sixty sculptured tombs. Its marvelous altarpiece is one of the most glorious in Spain, a country rich in exquisite examples of Christian Art.

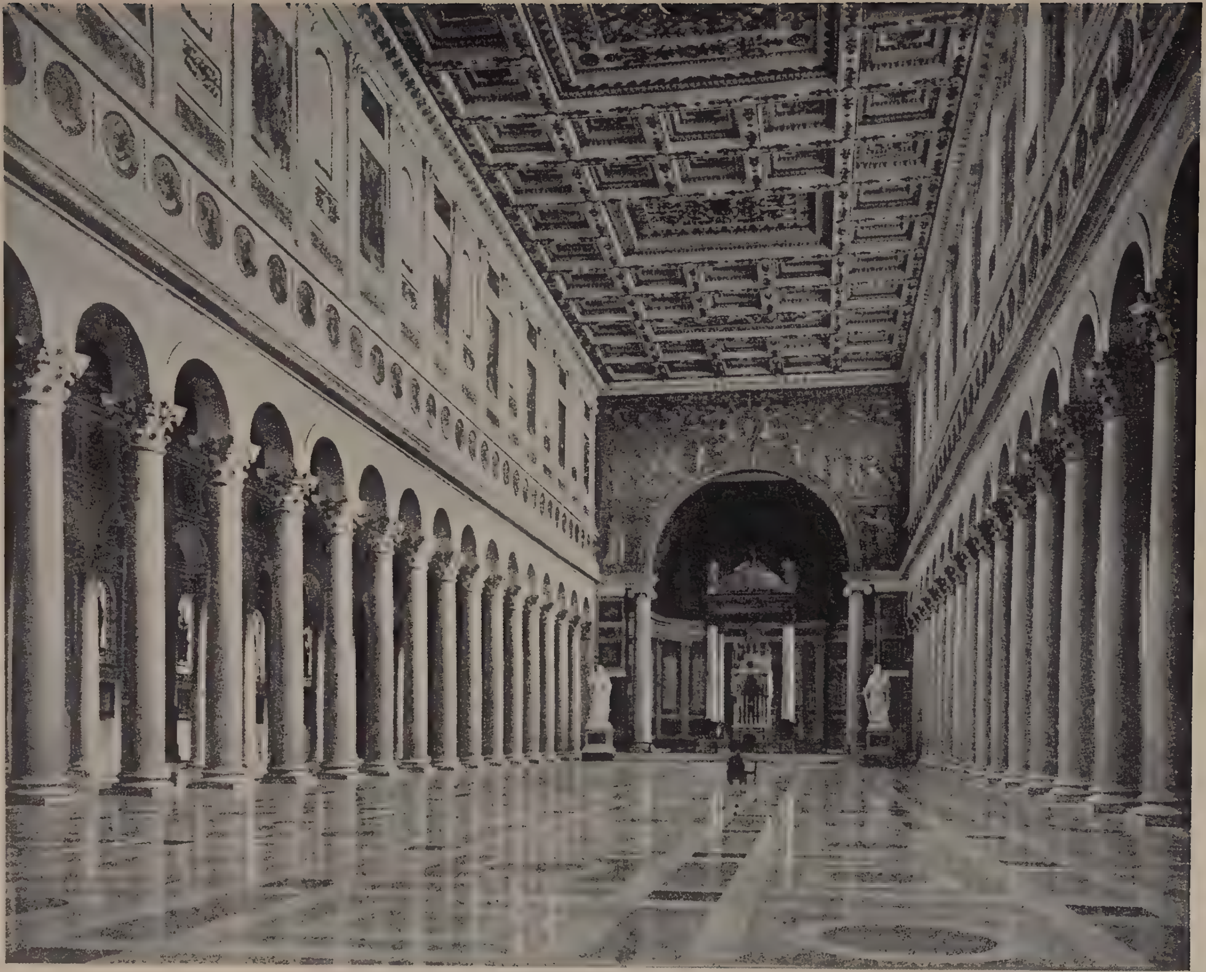
When a sounding board becomes necessary, it should for æsthetic reasons be one of the horizontal type, and the architect should be employed to make for it a design in harmony with the pulpit and the rest of the church.

The Confessional

Strictly speaking, the confessional consists only of that portion of the appointment in which the priest sits to listen to confessions. In its primitive form, the confessional consisted of nothing more than a seat for the confessor, a kneeling desk for the penitent (placed at right angles to the seat), and, separating the two, a high screen. The latter was pierced by numerous holes at a point near the ear of the confessor administering the Sacrament of Penance. Later it became customary to dignify the confessional by placing a canopy or protection over the head of the priest, and by adding for another penitent an additional kneeling desk and screen on the opposite side of the priest's seat. With this innovation it became necessary to install sliding shutters across the holes or gratings to prevent distraction and the conveyance of the whispered confession from one penitent to the other. Not a great period elapsed before the designers had the kneeling desks surrounded by partitions and covered over like the confessor's booth; in such form they are now almost invariably built. In the Basilica of S. Antonio, Padua, there is a finely designed fourteenth-century confessional of the early type.

The confessional is, in general, lightly constructed of wood. If only one penitent's compartment is desired, it should (if the confessional is designed for an aisle wall) be towards the entrance of the church so that penitents will not be required to turn their backs to the altar when entering the confessional. But while confessionals with only one penitent's booth are less expensive, it is obvious that those with two booths make it possible for the priest to accommodate more penitents in a given time, and furthermore he does not become so greatly fatigued as when he is forced to lean constantly to one and the same side.

Confessionals can be recessed into thick walls, in which case it is possible to have them designed with the minimum of woodwork, for the openings into the booths can then be separated by piers of masonry. Confessionals can be projected into the church if they are not too bulky, or, if properly handled, they can be built to project outside the



The Interior

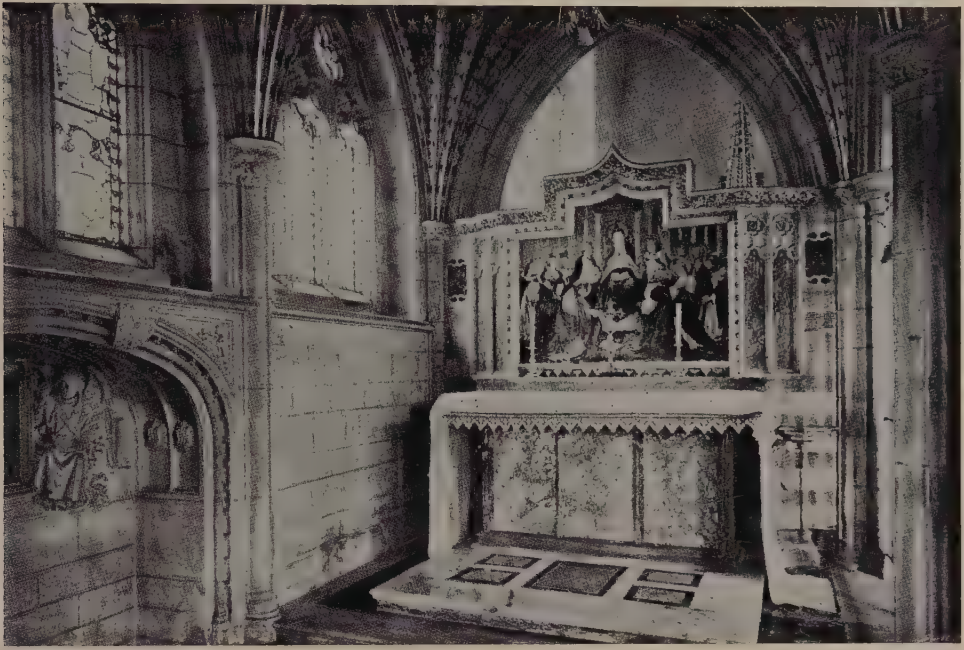
PLATE 170

THE BASILICA OF ST. PAUL OUTSIDE THE WALLS, ROME

This basilica is one of the grandest examples of Early Christian architecture extant. It is almost faultless in its proportions. The plan consists of five naves, or, in other words, a central nave flanked by double aisles on each side. The original building was founded by Constantine. As the fire of 1823 almost completely destroyed the edifice, a large part had to be rebuilt, but even to the smallest details this was executed in the ancient style. Portraits of the Popes are arranged over the colonnade. The great triumphal arch in front of the sanctuary with its priceless mosaics was preserved from the fire. The mosaics date from 440 and on the nave side are representations of Christ adored by the twenty-four Elders and of the Four Beasts of the Apocalypse.

building. The partitions between the booths should be made in such a way that they become soundproof.

The booths are occasionally arranged so that the priest enters his booth from a clergy ambulatory at the back of the confessionals. A series of confessionals can be accommodated in this way by one ambulatory. With this scheme a double confessional has but two openings in place of three showing in the church aisle. A comfortable seat shaped to the form and a sloping back should be installed in the priest's booth, together with an arm rest at each side placed on a line with the bottom of the small gratings through which the penitent talks. There should be in the priest's booth an electric light high up on the left for reading, and an electric stove, or a small radiator, or both, to be used for heating purposes in cold weather.



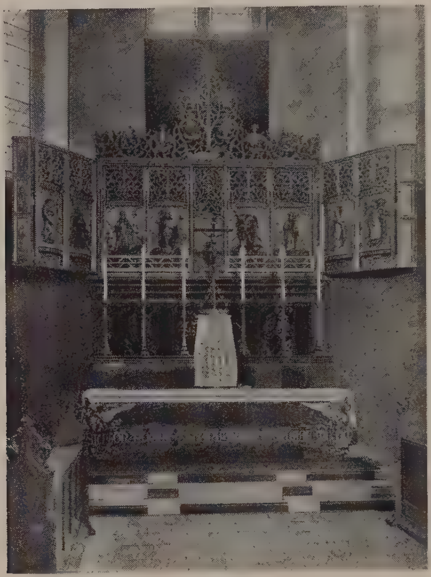
(J. F. Bentley, Architect.) PLATE 171

Side Chapel of the Holy Ghost

CHURCH OF THE HOLY ROOD, WATFORD, ENGLAND

In the penitent's booth a wide kneeler, 5½ inches high, and a comfortable arm rest are required. The metal or wood grating must be placed near the priest's ear, and it must, if there is more than one penitent's booth, have a sliding door over it.

The entrances to the booths can be filled with well-designed gratings, or curtains of appropriate material can be used. When curtains are chosen, the priest's compartment is generally supplied with a half or Dutch door.



(G. Gilbert Scott, Architect.) PLATE 172

Altar and Reredos (Modern)

ST. MARY'S CHURCH, DOUGLAS, ISLE OF MAN, ENGLAND

THE HOLY OIL CASE

The holy oil case is placed in the sanctuary wall to the Gospel side of the altar. It is sometimes called a Chrismatory, from the Holy Chrism or *Sanctum Chrisma* which it contains. Besides the latter oil, two other oils—*Oleum Sanctum* and *Oleum Infirmorum*—are preserved in it. The holy oil case need not he large, but a plea for something a little more ornate and in keeping with its sacred function is timely. There is a beautiful ancient holy oil case of marble in the Church of S. Francesco at Viterbo, Italy (Plate 186), the door of which is flanked by twisted columns inlaid with exquisite mosaic, and a pediment, containing the words: S. OLEUM INFIRMORO, is carried over the carved capitals of the columns.

Some of the English pre-Reformation chrismatories were of silver and gilt within and without, and enameled figures, pinnacles and buttresses completed the decorations.

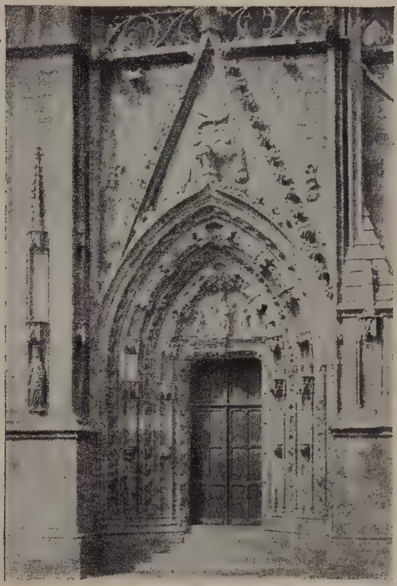


PLATE 173

The South or St. Catherine's Door

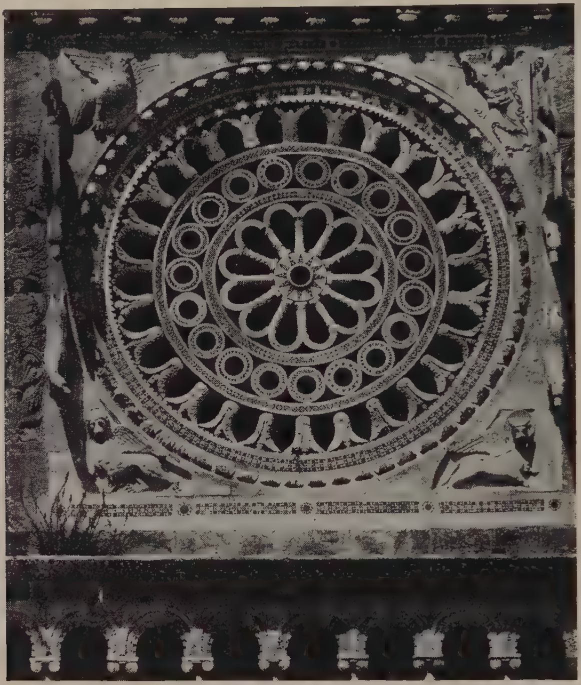
CATHEDRAL OF QUIMPER, BRITTANY, FRANCE

In this doorway, the Cathedral of Quimper (Plate 132) exemplifies the charm of a great deal of the architecture of the Breton Peninsula. In a way, this type of architecture brings to mind Spanish work, with its extremely exuberant parts brought into close juxtaposition with portions of the building that are almost austere in their treatment.

The holy oil case must have shelves, and a door supplied with lock and key, while on this door must be the words: OLEA SACRA.

THE COMMUNION RAIL

The cloth for the use of the communicants is to hang on the inside of the rail, although this cloth is now generally superseded by a pall carried by the altar-boy or passed from communicant to communicant. Communion rails in a great many churches are entirely too long, and spoil all artistic effect. It is customary today to see great crowds of people receiving Communion, but even so I am not aware of the necessity for ever having more than a reasonable length of railing, for, as soon as one person receives, he departs and thus allows room for the next.

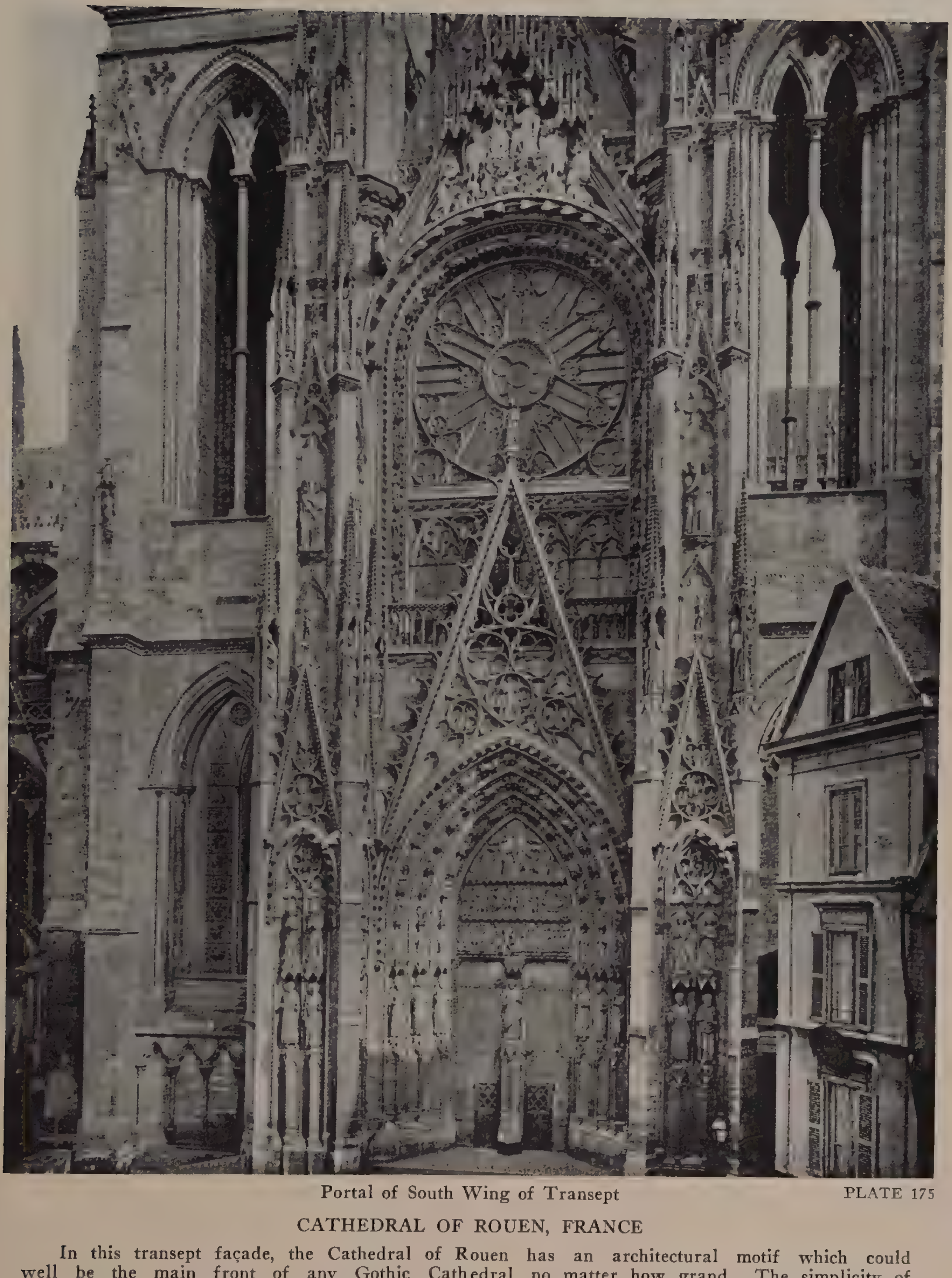


The Rose Window PLATE 174

CHURCH OF S. PIETRO, TOSCANELLA, ITALY

This magnificent rose window of S. Pietro, together with the symbols of the Four Evangelists in the corners around it, but not including the four beasts flanking the rose, is probably the work of the Cosmati family. Attention should be called to the inlaid Cosmati mosaic on the arches, circles, and other parts of the rose window, and in the horizontal bands to the top and bottom. It is not difficult to see the difference in character between the rude sculpture of the four beasts flanking the rose (ninth-century work) and the refined character of the Four Evangelists' symbols (thirteenth-century work).

If the communion rail is carried across the sanctuary to the piers or columns that occur between the transept and sanctuary (or between the side altars and sanctuary), it can be continued across the front of the transept or side altars (as the case may be), thereby gaining extra length.



Portal of South Wing of Transept PLATE 175

CATHEDRAL OF ROUEN, FRANCE

In this transept façade, the Cathedral of Rouen has an architectural motif which could well be the main front of any Gothic Cathedral, no matter how grand. The simplicity of the flanking towers acts as a foil for the marvelous enrichment of the portion of the building between them. In the gable over the rose window is a sculptured group of Our Lord and His Mother, accompanied by Angels. The towers are thirteenth-century Gothic, while the portal and the work above it belong to the fourteenth-century or Geometric Gothic architecture of France.

In a church with a communion rail of very great length, the priests (if two are distributing Communion) must walk many yards after each one has finished his half of the line, before he can again distribute. This causes an unnecessary delay for both clergy and faithful.

The communion rail in one of the largest cathedrals of this country is about 100 feet long which, instead of being an advantage for the priest, is a decided disadvantage. There might be, for example, a few communicants at each end, which means that the priest walks almost a hundred feet without necessity. The height of the communion rail should be 2 feet 4 inches, measuring from the communicants' kneeling step. If the parish can meet the expense, it is well to have leather kneeling cushions at the communion rail; they may be red, green, or purple. The gates in the communion rail should open in towards the sanctuary. One or more steps in addition to the kneeler should not be

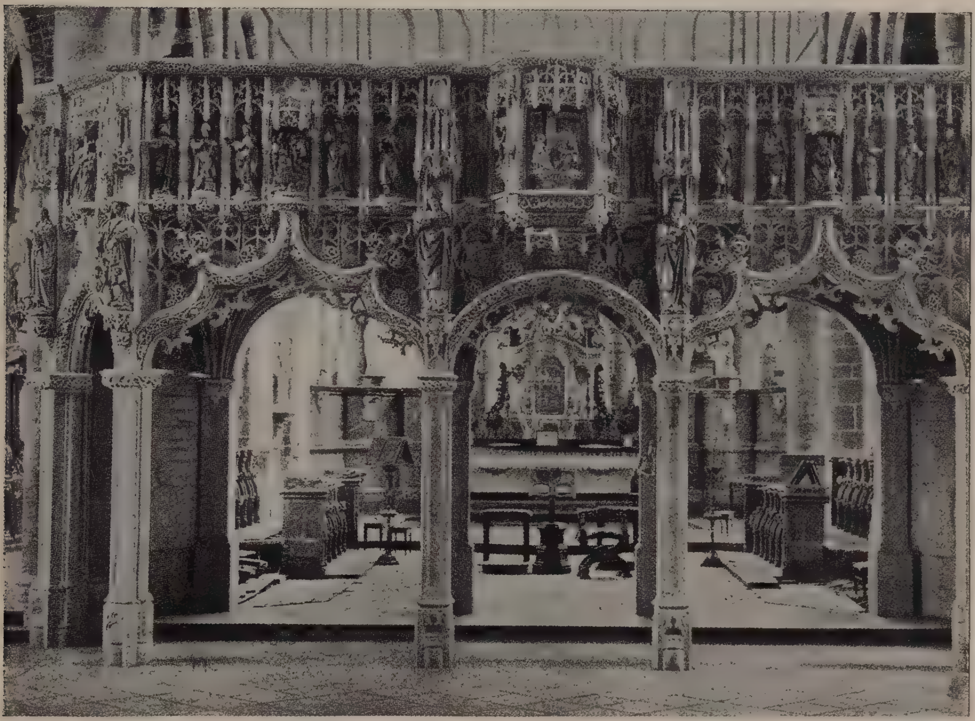


PLATE 176

ROOD SCREEN, LATE OR FIFTEENTH-CENTURY GOTHIC used, for it is unseemly and undignified to climb up a flight of two or three steps to the communion rail, and the extra steps are a source of danger for elderly people for they have a tendency to make them stumble and fall.

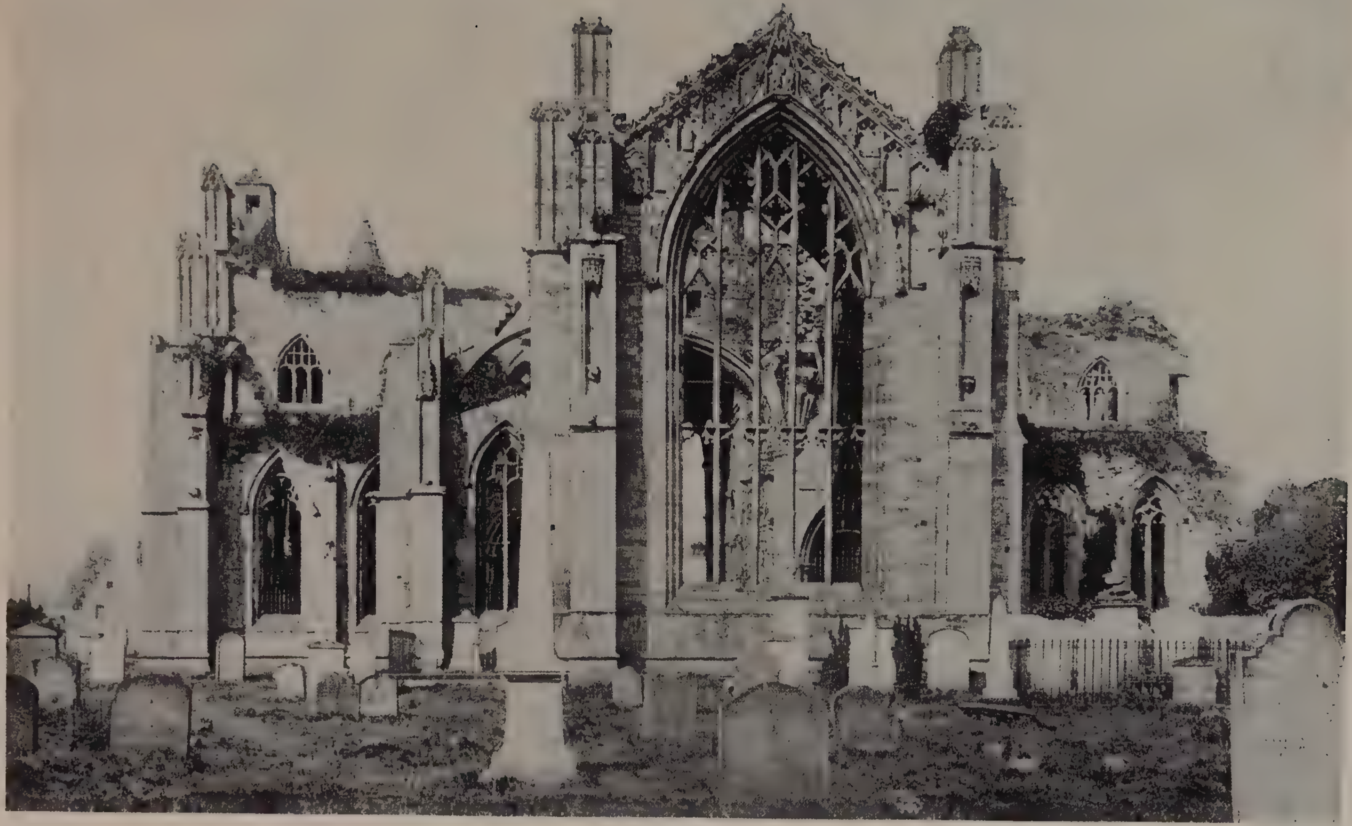
The Holy Rood

To make a more pronounced demarcation between the nave and choir of churches, there was usually to be found in the days of the Ages of Faith a holy rood or cross suspended from the ceiling on chains, or supported on a beam called the rood beam. Other examples show the rood placed on a gallery or loft called rood loft or jubé over the chancel screen (cfr. *The Homiletic and Pastoral Review,* August, 1927, p. 1192). On the earlier roods no figure of the Crucified was to be found. In later times, the crucifix became customary, and it was then flanked by carved figures of Our Lady and St. John. The cross was usually foliated and very rich, and at its extremities contained the symbols of the Four Evangelists; St. Andrew was placed to our Lord's right, St. John

(Edward J. Weber, Architect.) PLATE 177

The Side Altar in the North Aisle

ST. JOHN THE EVANGELIST'S CHURCH, WELLSBURG, W. VA.



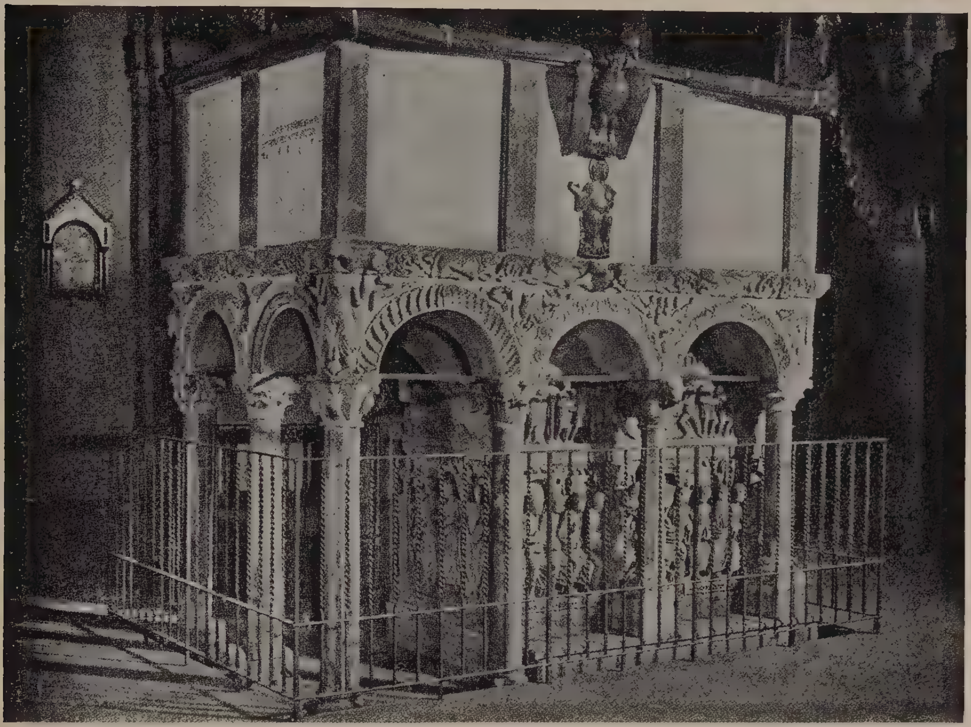
East View

PLATE 178

MELROSE ABBEY, SCOTLAND

The ruins of Melrose Abbey, shown in this illustration, are parts of the church built in 1136 by King David I, who presented it to the Cistercians. It was partially ruined in 1392 by the English, but Robert Bruce soon afterwards restored it. The style of the great East (or sanctuary) window and its gable is Late Perpendicular or fifteenth-century Gothic work. This view, giving the projecting wings of the transept, indicates that both the choir and the transept were accompanied by aisles. About 1562 the followers of John Knox expelled the monks, and thereafter the building was allowed to fall into decay.

at the top, St. Mark at His left, and St. Luke at the foot, which is the correct way to place the symbols. On the back of the cross was often painted at the extremities the four great Doctors of the Church, with an image of Our Lady in the center. The Holy Rood, an appointment (if placed in the hands of an artist) very decorative and exquisitely beautiful, should excite great devotion in the faithful. From the ceiling of the new Westminster Cathedral, London, hangs a Rood of great artistic worth, which measures 30 feet in length. The Holy Rood should certainly be restored to its rightful place in the decoration of our churches today.



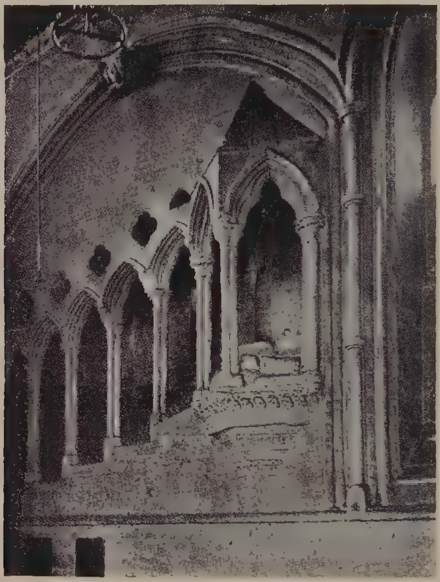
The Pulpit PLATE 179

CHURCH OF ST. AMBROSE, MILAN, ITALY

In this pulpit, Milan has a fine sample of twelfth-century Romanesque design. In the carved horizontal band over the arches are carvings characteristic of Lombard work, and in the spandrels are carved birds and animals. Under the pulpit is an Early Christian sarcophagus of the sixth century.

THE CREDENCE

About 20 inches by 40 inches is the proper size for a credence—except for episcopal ceremonies, when a larger table should be used. Wood, marble, metal, or any other suitable materials can be utilized. Three feet is a satisfactory height. The credence should be placed on the South end of the altar, near the wall or against it. Suggestions given in this paper for the decoration of other pieces of furniture used in the church might well be applied to the credence.



Lector's Pulpit PLATE 180

CATHEDRAL OF CHESTER, ENGLAND

This illustration demonstrates clearly how well the medieval artist used his imagination. It is difficult to see how this beautiful thirteenth-century work could be improved upon. The doors at the left-hand lower corner lead to the stairway which ascends to the pulpit. The corbel of the pulpit is beautified by moldings and carvings, and the arches and clustered columns are of unusually graceful form. Over each arch is a small quatrefoil, which aids in lightening the load bearing on the column.

THE SEDILIA

The *sedilia* can be a low wooden bench with a back (*i.e.,* a *scamnum*). It stands on the Epistle side of the sanctuary, and there must be ample room on it for the three sacred ministers, as separate chairs are not permitted.

STATIONS OF THE WAY OF THE CROSS

It is well to bear in mind that the little wooden crosses which one beholds over the scenes representing the Passion of Christ are actually the stations themselves. In the Holy Land where the devotion of the Stations of the Cross was inaugurated, wooden crosses were set up to mark the spots where Jesus fell, where He met His afflicted Mother, and so on. The stations of the cross in our churches are copied from the stations in the Holy Land. The wooden cross is all that is essential. The pictures are not required.

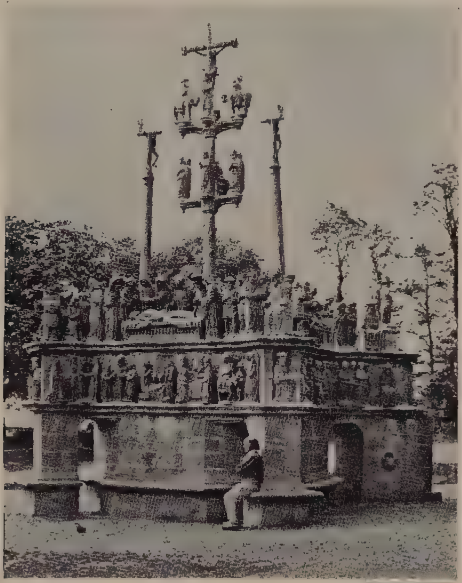


PLATE 181

THE CALVARY AT PLOUGASTEL, BRITTANY

Calvaries, which were once so common throughout Europe, are still plentiful in Brittany in the northwest corner of France. The calvary here illustrated is composed of a platform of vast dimensions, with great buttresses at the four corners (those at the front noticeably larger than those at the rear), a frieze of figures surrounding the whole, and the Crucifixion and crowd mounted above.

It is well in designing a church to take early precautions in the development of the plans to have proper places for the orderly placing of the stations, whether accompanied by pictures or sculptures, or not. The fourteen representations of the different stages of our Lord's journey to Calvary and crucifixion, and their frames and appurtenances, should all be in harmony with the remainder of the church and its furniture. The architect should be employed to design or take charge of the designing of this very important part of the regular appointments in the House of God.

CHAPTER X

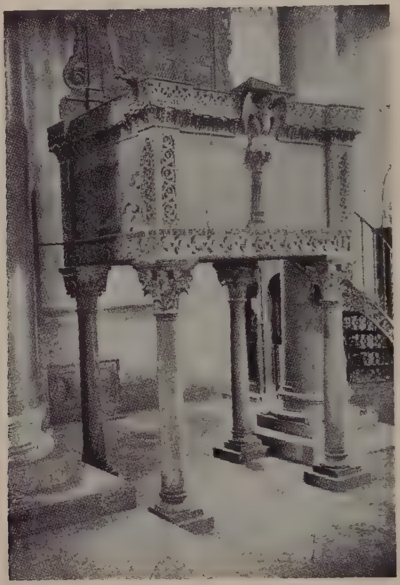
CHURCH DECORATIONS

WHAT should be the effect produced upon us when we view the interior of the House of the Lord? What impression should it make? First of all, the interior should be so designed that it puts us into the proper mood for communing with the Almighty. Our hearts should be raised on high. Thoughts of the noisy marts and of mundane things in general should be expelled from our minds; a feeling of quiet, peace and contentment should permeate the place which is to furnish a refuge for those who labor and are burdened.

As proper decorations have a tremendous influence on the minds of the faithful, interior decorations should be full of repose and dignity; yet, withal, their richness and splendor in color and gold should suggest something of the glory of the Lord of the Tabernacle. The decorator is thus called upon to demonstrate the full scope of his thought and imagination, while manifesting the utmost honesty and sincerity in the handling of his materials. The devotional atmosphere of the interior must be brought out supremely. The general decorative effect should be accentuated at telling places in the edifice, and all should be so managed that there is a brilliant focus on the high altar in the sanctuary. All vulgar tawdriness, every hint of imitation or deception, and all useless profusion of white marble, must be strictly eschewed. Onyx and lacquered brass should be used sparingly, while cheap, tinselly and gaudy effects in white and gold should be rigidly barred.

In figure painting, the pictorial and the realistic must be avoided, as pertaining only to the easels of commercial and worldly art. Conventionalism and a minimum of perspective are the ideals to be followed in mural painting, so that to the beholder it will be manifest that the paintings are contained on a wall. The walls will not then have that weak, non-supporting and perforated aspect which results when effects of sky, atmosphere and too much perspective are attempted. The canons of mural art must not be tampered with.

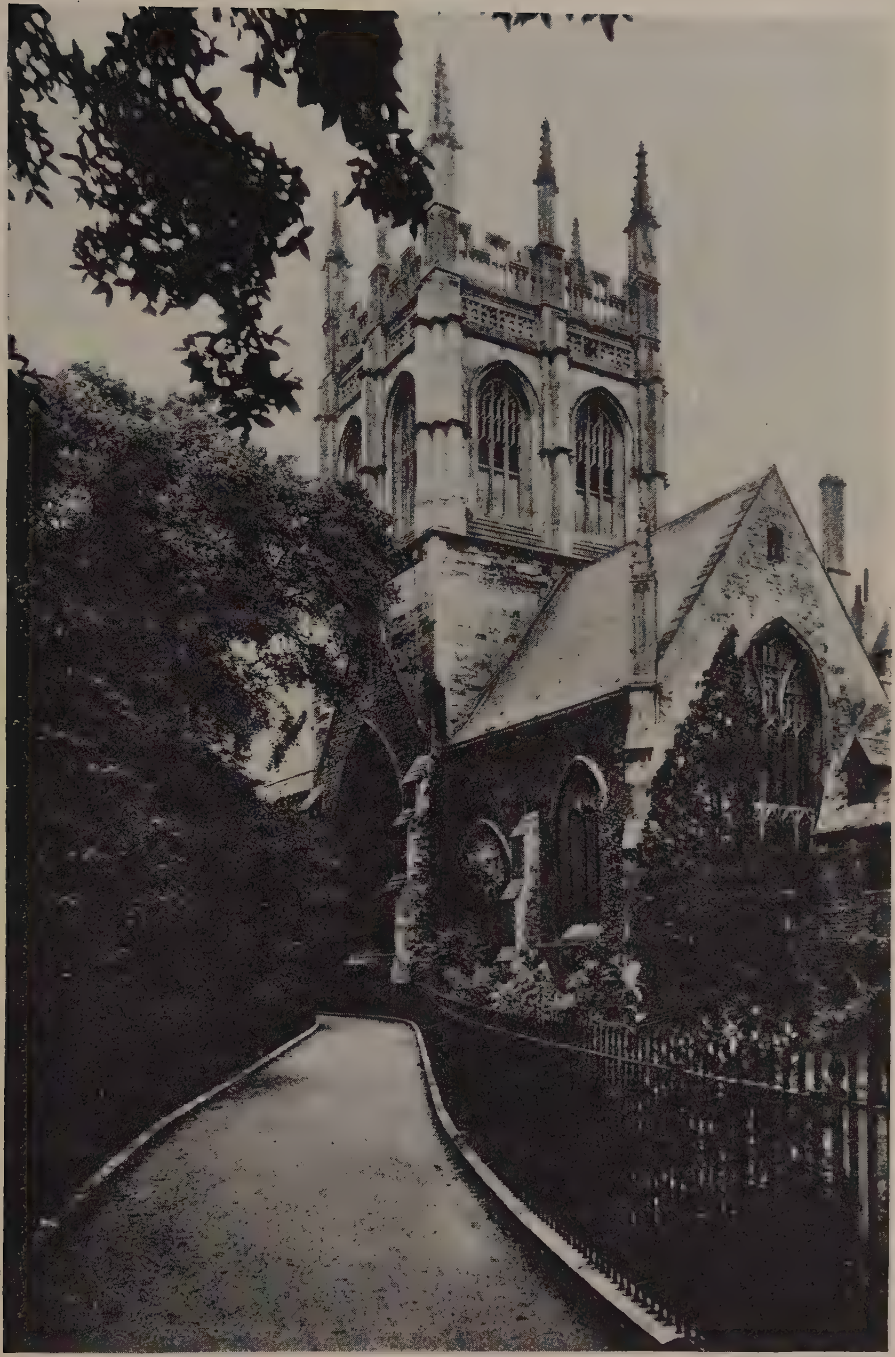
Care must also be exercised not to nullify the potentialities of the architectural design, and not to conceal or falsify the construction by the decorative ornamentation. The scheme should be so conceived that a grand harmony of line and color is effected for the whole edifice, so that nothing can be added or taken away without producing a discordant note which would ruin the effect of the whole. The general scheme of color decoration must be one that coördinates with the architectural style of the surroundings, and emphasizes the strength of pier and wall, the rhythm of line and proportion, and the character of leaf and chevron on frieze, capital and molding.



The Pulpit PLATE 182

CATHEDRAL OF TROIA, ITALY

As an example of Southern Italian Romanesque design, the pulpit in Troia Cathedral compares well with anything of its kind. The exuberance of the carvings on capitals, architrave, pilasters and cornice, and the beautiful eagle which functions to hold the book of the Gospels, show us that the artists of this wonderful period of art knew carving and enrichment, in addition to planning, composition and proportion.



South-East View PLATE 183

CHAPEL AT OXFORD, ENGLAND

A very impressive, crossing-tower treatment is shown in this fine Perpendicular Gothic church. There is plenty of masonry over the tower windows, and the light pinnacles rise to a commanding height. The South wing of the transept has been removed from the building, as may be guessed by the presence of the sloping label molding over the arched window in the lower part of the tower.

While it is not advisable to appropriate or imitate slavishly the bygone styles, yet, since the highest expression of Catholic Art is that of the Early Christian and Medieval periods, the artist would do well to try and emulate some of the glow and spirit of the decorative treatment of those ages. For example, the artist may study with profit the marvelous mosaics of Rome and Ravenna; the murals of Giotto at Assisi, Padua and Florence; the frescoes of Fra Angelico and the Byzantine artists, and the stained and painted glass—the so-called limpid jewels—of the Cathedral of Chartres. Other notable achievements that merit attention are the decorations of the Capella Palatina at Palermo (Sicily), of St. Mark's at Venice, of the Church of Hagia Sophia at Constantinople, of the Upper and Lower Church of St. Francis at Assisi, of the Church of St. Anastasia at Verona, and of the Cathedral of Monreale in Sicily. The gorgeous open timber trussed roofs of San Miniato, Florence, and of some of the medieval English parish churches can also be studied with advantage.

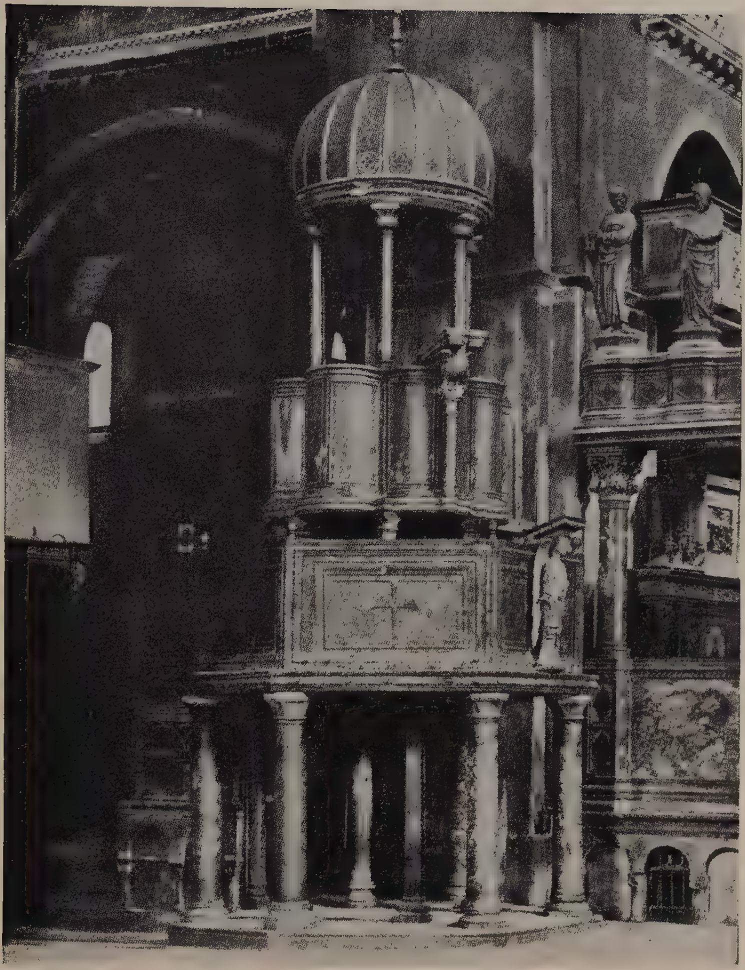
The following is a short description of the systems and materials that were requisitioned to insure good results in church decorations in ancient days.

In the large Gothic edifices of Europe, the development of the architectural skeleton made possible windows of such great dimensions that the walls were reduced in large measure to mere piers, generally of stone on both the inside and the outside. Consequently, the colored embellishments in this particular type of church were obtained principally by the use of magnificent stained glass. The vaultings (or ceilings) of stone awaited invitingly the glorious tints from the painter's palette, although even here in some sections of Europe the brush was allowed to remain idle. For instance, the development of the beautiful fan vaulting in England brought such a profusion of moldings, tracery and carved bosses, that color on some examples was hardly necessary. However, the open timber roofs of some of the Gothic parish churches of England more than recompensed for any lack of color in an occasional stone vaulted ceiling. These roofs were of oak, profusely decorated with azure, vermilion and gold, and numerous magnificent carvings of angels and various symbolical ornaments bedecked their surfaces. On the blue firmament of the panels were often powdered gilded lead stars, rayed with wavy lines.

A simple color palette, containing (besides white and black) only five colors, was used—in this respect imitating the lovely medieval painted glass. These colors were blue, red, green, yellow and chocolate brown. After the fourteenth century, gold to some extent replaced yellow, and was used to set out the edges of moldings. Outlines were usually drawn in black, although sometimes dark blue took its place. Brilliant red panels alternated a great deal with ones of bright green. These were emblazoned with diapers and powderings of sacred monograms, symbols, etc. Along the friezes of the walls, where rested the trusses, were strung apt texts taken from the Bible. No effeminate pale tints were used. Why indeed should they be? Had not the painter for his guidance the work of the Creator? He had only to observe the fiery sunsets, the brilliant plumage of some of the feathery tribe, and the bright colors of the flowers of the fields, etc. Could we ourselves do better than try to emulate these?

Although the Gothic cathedral with its great expanse of glass, its intricately molded arcade piers and arches, its rich triforium, and traceried clerestory, had no such need of color, yet there are examples of color used on stone capitals and pillars, and in fact everywhere in the building. The soaring stone vaults were on occasion made awesome in their grandeur with gold stars powdered over a night-blue field. In the countries of the South of Europe—where Gothic was an exotic style, so to speak—the great mural decorators matured and held sway. There the bright sunny climate developed an architecture of small windows which resulted in a great expanse of wall. Mr. Street, the English architect, complained that, in some of the churches of sunny Spain, the small windows admitted so little light that he could not see to draw sketches.

The term generally used today to denote any kind of decorative painting on the walls and ceilings of churches is "fresco," but the term is generally misleading. There is only one kind of true fresco, and some of the existing paintings made by this method date from the fifteenth century. This system is called "al fresco," "fresco" being the Italian



The Ambo PLATE 184

ST. MARK'S CATHEDRAL, VENICE

From this very unusual and very beautiful marble ambo are read both the Epistle and the Gospel—the former from the lower story and the latter from the upper one. The double-deck pulpits of the seventeenth and eighteenth centuries, some of which can still be found in England, are modeled after this ambo. Although the seventeenth and eighteenth centuries copied the idea of St. Mark's ambo, they did not fathom its spirit, for the architectural merits of the copies are far from ideal. Ambos were used in the Early Christian churches, but they were never more than one story high. At first they were stationed in the center of the church and supplied with two sets of stairs, one leading up from the choir and the other leading up from the nave. From the steps towards the choir was read the Epistle, while from the opposite steps was read the Gospel. Not a long time elapsed before the inconvenience of one ambo became apparent, after which two ambos—one each for the Epistle and the Gospel—came into use. At St. Clement's in Rome this latter arrangement can still be seen. In the fourteenth century the ambos were superseded almost entirely by pulpits.

word for "fresh" (meaning in this particular case *fresh* or *wet* plaster). In true fresco, the paint is applied to fresh plaster, and thus the amount of plastering done daily must not be greater than the area possible for the painter to paint daily. The colors are dissolved in lime-saturated water, and thus penetrate quite deeply into the wet plaster, thereby becoming in fact an integral part of the wall. As a certain flinty film develops over the colors (the film being deposited by chemical action), the painting is rendered permanent. In fresco, the colors do not become dark or faded as in oil paintings. It is very seldom that this method of decorating is now attempted, as it is attended in most cases with almost insurmountable obstacles.

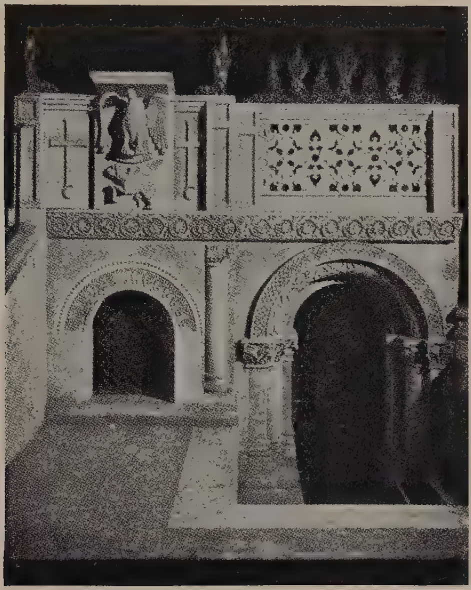


PLATE 185

The Ambo and Entrance to Crypt

CHURCH OF SAN PIETRO IN CIEL D'ORO, PAVIA, ITALY

The church in which this beautiful work of art is to be found is renowned as the repository of the relics of St. Augustine and the body of King Luitprand. In 725, this king had St. Augustine's body deposited in the crypt, the entrance to which is shown in the picture.

There is, however, a method as old as that above-noted, and nearly akin to it. This is called "al secco"—"secco" being the Italian word for "dry." By this system the colors are dissolved in lime-saturated water as in "al fresco," but they are applied—not to a fresh or wet plaster wall, but—to a sand floated dry plaster wall of any age. The color does not penetrate the plaster to the same depth as in "al fresco," but, because the plaster on the wall is moistened before the color is applied, the color does penetrate to some distance, and the same flinty film covers the surface of the colors, thus rendering them permanent. Because this method does not present the difficulties of "al fresco," it is a very desirable method for use today. The colors obtained by this system are durable, always retain their brightness, and can be cleaned by simply using a sponge, water and a suitable soap. Needless to say,

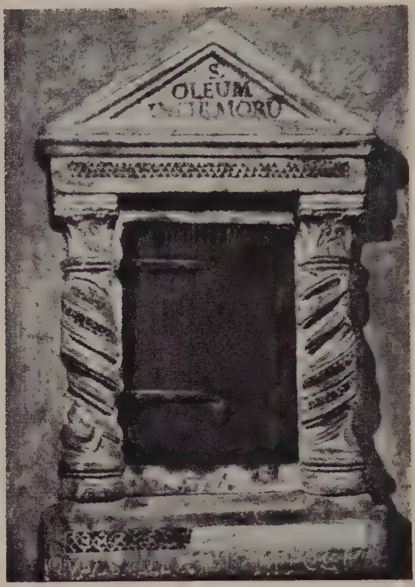


PLATE 186

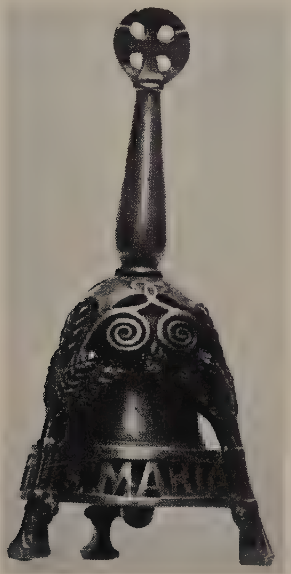
Ambry for the Holy Oils

CHURCH OF ST. FRANCIS, VITERBO, ITALY

In the Church of St. Francis, Viterbo, is to be seen this beautiful example of a Holy Oil Case. To fix its date and style is difficult, although it is probably the work of the Cosmati family or of some of their followers. In the pediment over the door one may possibly detect the beginnings of the Renaissance; yet, one cannot say for certain, as there were occasional outcroppings of the Classic or Early Christian tradition in architecture in Italy during the Middle Ages. Observe the lovely twisted columns with their inlays of mosaic, and the skill shown in the sculptured capitals of the columns.

such decorations can only be made on lime plaster—which, aside from other considerations, should be for acoustical reasons the only kind used in the church.

The practice so common today of painting with oil on canvas in the studio and then afterwards glueing the finished painting to the wall is most unfortunate. Nor is it alone because the method does not properly lend itself to church decoration. It is obvious that the life of such painting is the life of the canvas, whereas fresco endures.



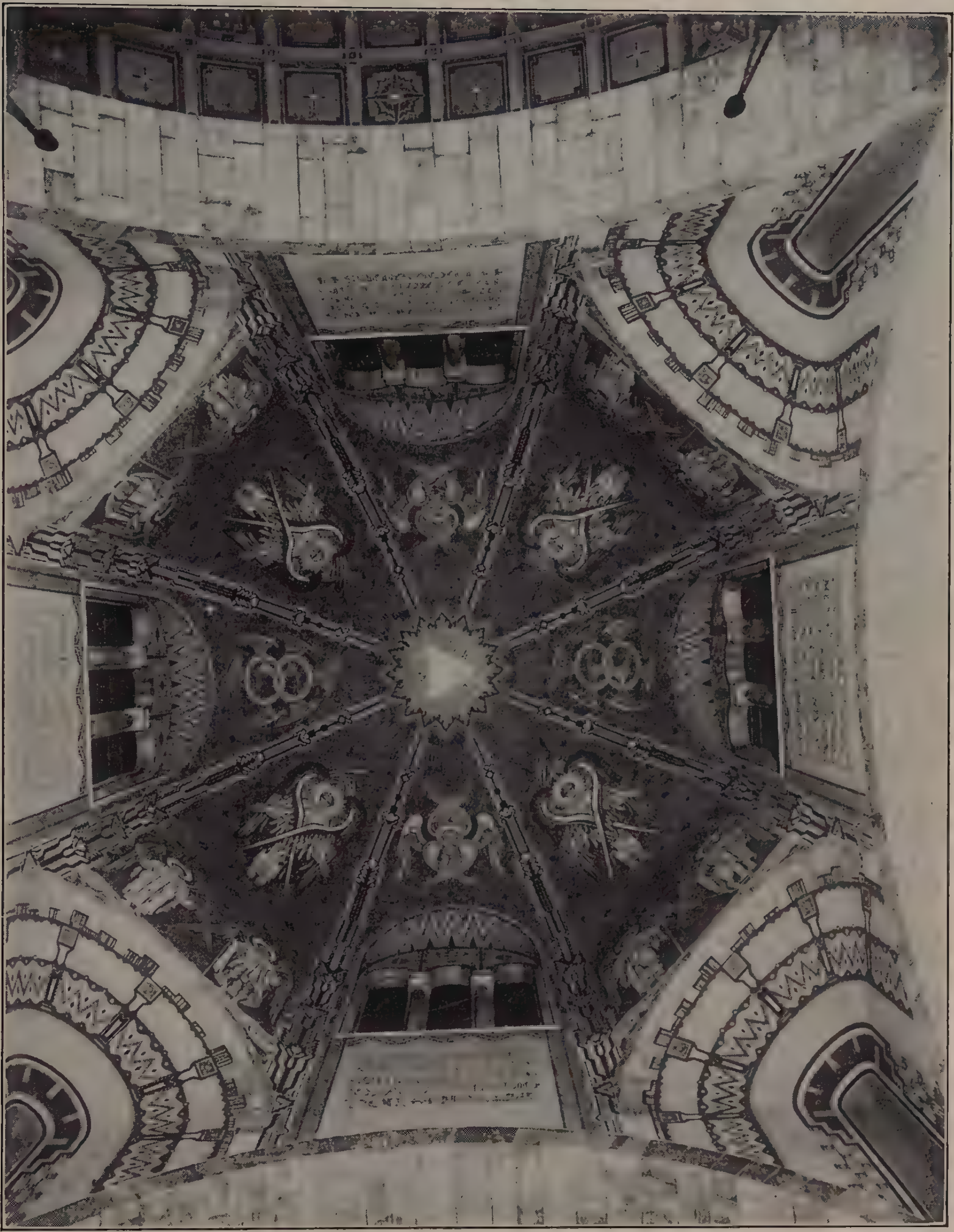
(Courtesy, "Journal A. I. A.")
PLATE 187

Sanctus Bell (Modern)
CHURCH OF ST. MARTIN, COLOMBES, FRANCE

As already stated, it is part of the task of the architect to take charge of the interior decoration of the church or other edifice. When the plans for the building are being studied and drawn, the architect must visualize the completed work down to the minutest detail. His function extends far beyond the shell of the building. In fact, the architect who contents himself with erecting the shell, and voluntarily resigns the altars, decorations, stained glass and furnishings to untrained persons for selection, is one who sells his birthright for a mess of pottage, and he is unworthy to bear the name of architect.

As the architect deals with the general scheme, the plan, construction, mechanical equipment, proportions, mass, and the silhouette of a building and the ornamentation of its exterior, so his also is the duty of taking general supervision of the design of its interior furnishings and decorations of any kind whatsoever. He is responsible, not only for making the building substantially built, mechanically perfect and properly functioning, but also for lending to its interior as well as to its exterior elements of beauty, for without beauty the edifice serves a merely utilitarian purpose. Granting that the architect's additional duty is to make the church both pleasing to the eye and devotional, how is it possible for him to effect this unless he is commissioned to supervise the decorations of the interior as well as those of the exterior?

To leave a well-designed and correctly built new church without its mural decorations for a long period of time, is unfortunate, to say the least. The walls, the sanctuary and the windows of many churches that are otherwise noble and beautiful, clamor for color and ornamentation, pleading to be brought into harmony with the completed portions of the structure. Here again we may quote Ruskin, who in his lectures on architecture and painting says: "The essential thing in a building—its first virtue—is that it be strongly built, and fit for its uses. The noblest thing in a building, and its highest virtue, is that it be nobly sculptured or painted." But, unfortunately, many a nobly designed church of today is in its decorative effect only a poor example of what a church should be. The pity of it all is that the untrained parishioners have a proneness to set a high valuation upon gaudy and bizarre decorative attempts. The theatrical in decoration, as in music, has a great appeal for the average person, who, obviously, is not in a position to appreciate its absolute incongruity in the House of God. Many of the modern decorators really know better, but some, while well aware of the above-stated fact, unqualifiedly cater to the vulgar taste for the tinsel and gold effects and the realistically drawn figures, which violate every canon of correct decorative and mural work. The people are given what they in their ignorance prefer, without any attempt being made on the part of



(Edward J. Weber, Architect.)
(F. B. Lieftuchter, Decorator.)

PLATE 188

Dome Decorations

ST. JOSEPH'S CATHEDRAL, WHEELING, W. VA.

The triangle in the center has the name of Jehovah written in Hebrew characters. The Nine Choirs of Angels are shown. The Thrones, Cherubim and Seraphim form the first division of the Nine Choirs; fiery winged wheels represent the Thrones; a head with six wings the Cherubim; a full-length figure with six wings the Seraphim. In the four corners between the windows are the Powers, Dominations and Virtues, i.e., the second division of the Nine Choirs. The third division includes the Archangels, which are found in the windows.

the commercial decorator to train them in the true traditions of art, by surrounding them with that which is correct.

In a church built in the spirit inspired by the Romanesque or Byzantine styles of the South of Europe, the mural painter has an exceptional opportunity awaiting him. A church of this type often contains a semi-circular apse in which the high altar is placed. In this vicinity the murals should be preferably devoted to representation of the Triune God and the great truths of Christianity. The ceilings in the remaining portions, being symbolic of the heavens, are fitting places for the delineations of the nine choirs of Angels and the heavenly hierarchy.

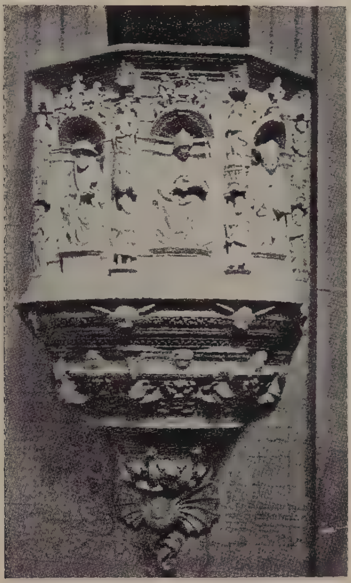


PLATE 189

The Pulpit

CATHEDRAL OF COIMBRA, PORTUGAL

In Coimbra there are two cathedrals. The older is a fine Romanesque building dating from the first half of the twelfth century, while the new cathedral is a Renaissance structure which was begun about 1580. This pulpit is Gothic in spirit, but its details are in the Early Renaissance style. In plan it is four-sided (only three sides show in the picture) and it is corbelled out from the wall in which is fashioned the pulpit entrance. Under the pulpit is carved the Evil One (represented by the eight-headed, winged dragon), being crushed under the weight of the Gospel preached from the pulpit. Cherubs are carved on the topmost moldings of the corbel. On each of the four sides is a niche containing seated figures of Saints, while on the angles between them and at the wall angles are superposed canopied Saints.

According to the most ancient traditions of the Byzantine scheme of decoration, the first three of the nine choirs—*i.e.,* the Thrones, Cherubim and Seraphim—are devoted to God's perpetual love and adoration. The first-named are represented by winged wheels of fire, the second by six wings surrounding a head, while a full-length figure having six wings represents the last. The second division of the choirs of Angels —consisting of the Powers, Dominations and Virtues—have full-length figures with two wings for their delineation. The Archangels, Michael, Gabriel, Raphael and Uriel, represented by their respective symbols, make up the third division. The decorations of the Cathedral of St. Joseph, Wheeling, W. Va. (Plate 188), demonstrate in a very impressive manner this style of adornment.

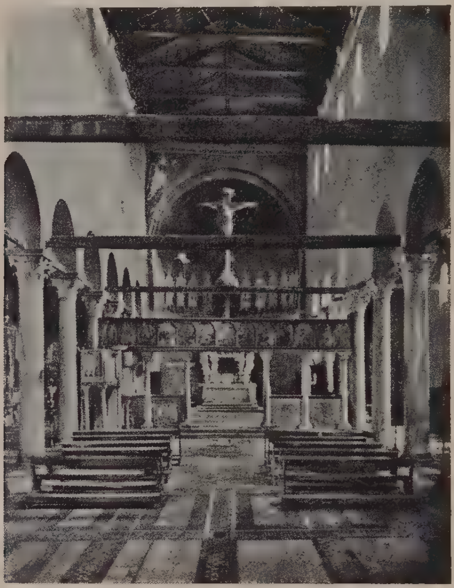


PLATE 190

The Interior

CATHEDRAL OF TORCELLO, ITALY

In this cathedral may still be found the foundations of the original bishop's throne built in the apse behind the altar and flanked by six rising rows of seats. These seats are faintly visible in the illustration, and the whole gives one some notion of the arrangement of an Early Christian basilica. This edifice was rebuilt in 1008. A peculiar feature is the placing of the crucifix on a rood beam directly over the chancel screen. The two pulpits date back to a very early time and are beautifully carved with symbolic figures.

Wonderful color effects can be produced with marble. Of all materials used in decorating, marble because of its rich, rare and costly qualities has been from time immemorial considered one of the most preeminent. The most precious objects in the consecrated Catholic church (*i.e.,* the altars) are ordained to be made of marble or stone. One of the most fruitful sources for colored decorations of splendor today are columns of marble suitably used for arcades and elsewhere. The Early Christian basilicas (for an example see Plate 10) and the Church of Hagia Sophia are indeed made glorious by their wonderful pillars of rare marbles of various colors (no two being alike) brought from Greece, Asia Minor, Africa, Italy and the Pyrenees Mountains.

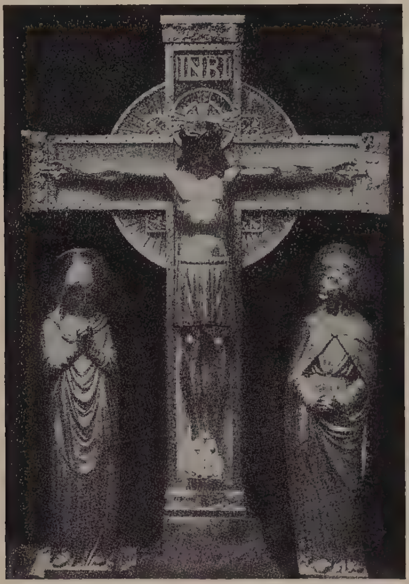


PLATE 191

Crucifixion Group for High Altar (Modern)

CHURCH IN HAYNAU, GERMANY

Marble of the proper kind, color and texture can also be utilized very effectively for dados and wall linings. St. Mark's in Venice (Plate 201), the Church of Hagia Sophia in Constantinople, and other famous churches have a great profusion of marble upon their walls, and some of the slabs are so set that they form with their veinings beautiful lozenge effects. Carved string courses or panels with inlays of varicolored glass, gold, marble, and mother-of-pearl mosaics, render marble work of this kind very effective, provided they are properly and artistically designed. Good effects can be procured by inserting brass inscriptions and bas-reliefs into marble backgrounds. Intarsia work (a marble field cut out in silhouette to receive a marble of another color), as practised on the walls and arcades in the Church of San Miniato at Florence (Plate 209), is also commendable. While this is not the place to discuss floor work, it might not be amiss to call attention to the fine floor in the Cathedral of Siena (Plate 120), which presents the whole story of the Old and New Testament done in marble intarsia work.

To procure good acoustics in the edifice, it has become customary today in a great many churches to use on ceilings and sometimes walls a certain porous tile, which, if properly disposed, can be rendered not only of practical value but also of great value decoratively. These tiles come in various mellow shades and colors, and, with the addition of a few designs in colored faience tiles or inlaid mosaics or even terrazzo decorations, ceilings and walls can be brought to a major degree of beauty. Faience and varicolored tiles can also be used effectively for dados and piers, if care is exercised in procuring harmonious colors.

CHAPTER XI

SYMBOLISM

SYMBOLS are signs or emblems used to represent something higher and nobler than appears at first to the eye. Symbolism is rampant in the ceremonial of the Catholic Church, and in the planning, conception and decoration of ecclesiastical edifices. In this chapter we are concerned only with the relation of symbolism to the material edifice.

Some primitive peoples, when asked for a proof of the existence of God, call attention to the lightning as the reflection of His glory and to the thunder as the sound of His voice. In very ancient times a straight or waved horizontal line was used to represent water. Light was indicated by a straight vertical line, which, when waved, betokened lightning. A horizontal line passing through a vertical forms a cross emblematic of creation, and this cross revolving around its center produces the Swastika cross, the four ends of which represent flames. The Swastika became the symbol of the creation of the world, and it is also symbolic of the four winds. The rubbing together of two sticks of wood at right angles to obtain fire suggested a cross form, so that, in addition, the cross became emblematic of fire. The Tau Cross, in which the horizontal line crosses the top of the vertical one as in an old-fashioned crutch, is the symbol of the arch keystone. The Ankh is a Tau Cross with an oval loop placed vertically on its top. It is a symbol of life, and signifies the joining of the old and new faiths—that is, Judaism and Christianity.

The circle represents the sun, and, on account of the figure having neither beginning nor end, it also betokens eternity and infinity. The circle is thus significant of life itself, spiritual and material. The crescent moon is represented by a semicircle, and it is the symbol of the Mother of God. An arch supported on two pillars also represents the moon.

The sun and moon used in juxtaposition symbolize day and night, birth and death, male and female.

The equilateral triangle is symbolic of the Triune God, as is likewise the trefoil or shamrock. In the double triangle (*i.e.,* two triangles superimposed in opposite ways to form a star), there is the representation of the perfect God and the perfect man. Human beings, as the children of God, have for their symbol the five-pointed star. This star also symbolizes man in the attitude of prayer, for in very early times (and still in the Greek Church) the correct attitude for prayer was to stand with arms outstretched and head erect. The five-pointed star is the only correct one to use over a Christmas Crib, or at any representation of the birthplace of our Lord.

PLATE 192

(Edward J. Weber, Architect.)

Monstrance for

ST. RAPHAEL'S CHURCH,
PITTSBURGH, PA.

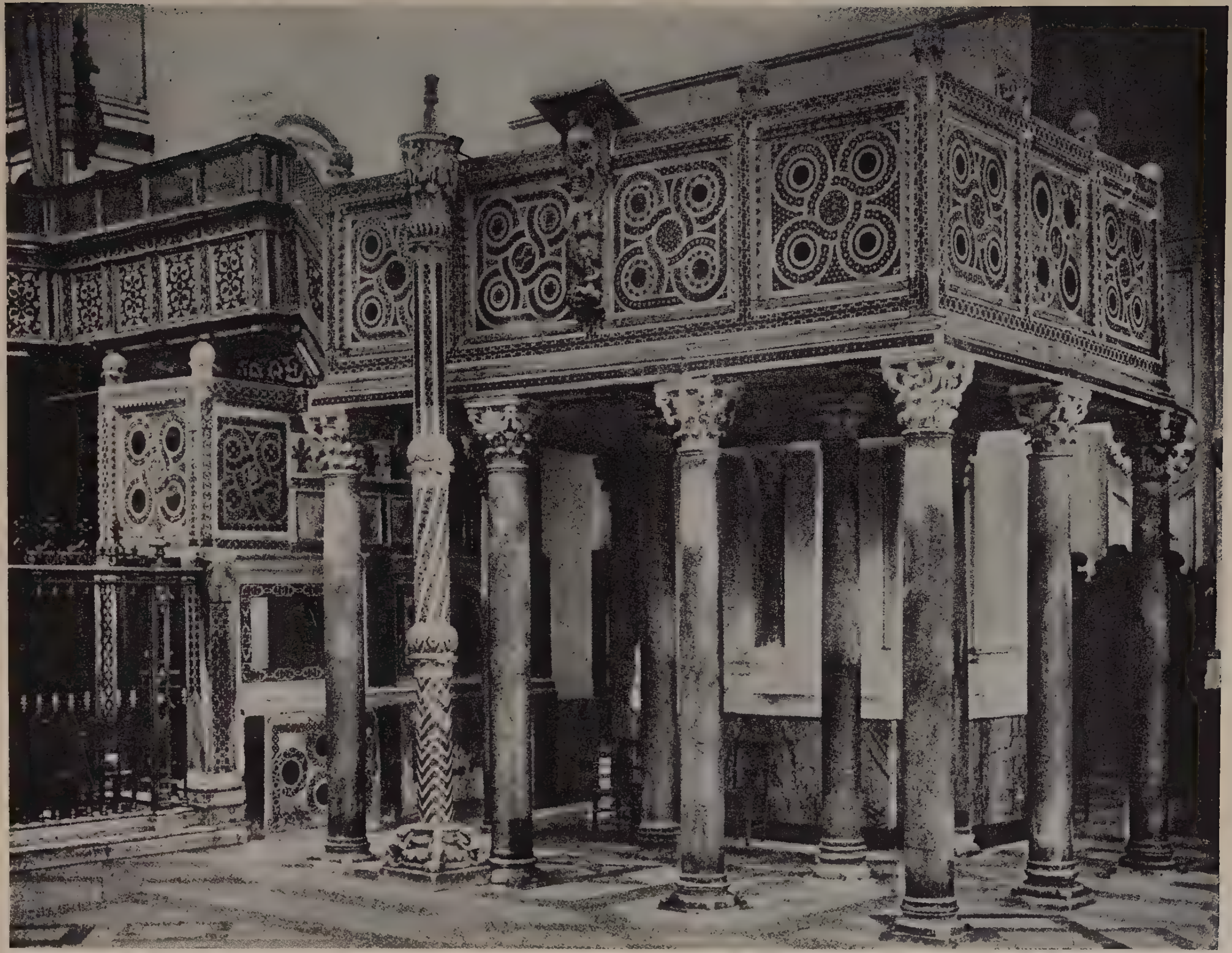
(Executed by Rambusch.)

PLATE 193

Triptych, with the Statue of Our Lady and Child

OLD CHAPEL IN RATISBON,
GERMANY

Among the early Christians the monogram of Christ was profusely



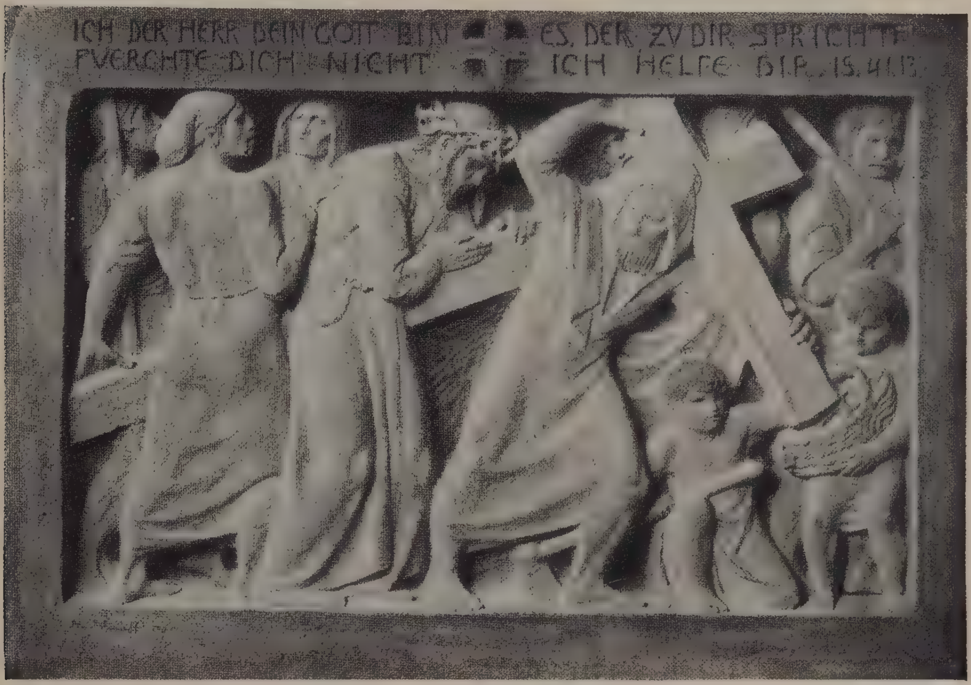
(Courtesy of "The American Architect.") PLATE 194

The Gospel Ambo and the Easter Candelabrum

CATHEDRAL OF SALERNO, ITALY

Here are represented some fine examples of thirteenth-century Cosmato work, made by the Cosmato family that flourished in the neighborhood of Rome from the twelfth to the fourteenth centuries. This work is generally used in decorating architectural features. Backgrounds are generally made of white or light-colored marbles on which are inlaid discs, squares and parallelograms of dark marble, porphyry and serpentine. These figures are surrounded by ribbons made with tesseræ of colored and gold glass, and with flat bands, carvings and moldings. The harlequinads thus formed are separated one from another.

used. It is known as the "CHI RHO," and it is formed by the superimposing of the Greek letters X (our Ch) and P (our R). Alpha and Omega (Α, Ω), the first and last letters of the Greek alphabet, are sometimes used with this monogram, in which case it denotes that Christ is the beginning and the end of all things. The "CHI RHO" in Christian symbolism is of earlier origin than the Cross.


ICH DER HERR DEIN GOTT BIN ES DER ZV DIR SPRICHT
FVRCHTE DICH NICHT ICH HELFE DIR IS. 41.13

Contemporary German Style PLATE 195

THE WAY OF THE CROSS

Station V. Simon the Cyrenian Helps Our Lord to Carry His Cross.

Because of the death of Christ on a cross, the Cross naturally became an object of great veneration among Christians. During the period of the persecution, however, great care had to be exercised in its use. For this reason the Cross was disguised in various ways—for example, as a cross-yard for the mast of a ship or as an anchor. When the latter was used, it became the symbol of hope. From the Latin numeral X, the St. Andrew's Cross is supposed to be derived. It became the national emblem of Scotland.

The "Physiologus" (or "Book of Beasts") is a list of some fifty beasts, birds, and fishes, with moral significance. It was first published about the fifth century, and was translated in both the East and the West into many languages, and even into dialects. This book, probably the most popular work of the Middle Ages, was in great part garnered from Pliny's "Natural History," but always with the addition of the ubiquitous moral.

PLATE 196

THE CORONATION OF THE VIRGIN (GIOTTO)

This painting belongs to the golden age of Italian religious art, and the composition is replete with appropriate suggestions for modern altar-piece designers.

PLATE 197

The Madonna of the Gun

ST. MARK'S CATHEDRAL, VENICE

The fish was used as a symbol of Christ. The good shepherd carrying a lamb, which was among the Jews symbolic of the Messiah, is our Lord's Christian symbol. The lamb is the symbol of the Redeemer, and the emblem of meekness; sheep represent the faithful.

The dove is symbolic of the Holy Ghost, and is often shown flying downwards. Sometimes there is a nimbus on the head only, while again the nimbus will surround the entire dove. Sometimes the dove bears a book, wisdom being the special attribute of the Third Person of the Trinity. When the dove bears an olive branch, it is symbolic of peace.

The lion, oddly enough, stands for both good and evil. It is the symbol of the Tribe of Judah. "Judah is a lion's whelp," says Holy Scripture. It was believed by the people of medieval days that the lioness always brought forth her cubs dead, and that on the third day the lion roared over them, bringing them to life by his breath. Thus, the lion becomes the symbol of the Resurrection, as our Lord remained three days in the tomb before He arose from the dead. St. Mark, because his Gospel to a great extent treats of the Resurrection, has a winged lion for his symbol. On the tombs of ecclesiastics, the lion at the feet signifies the evil one being trodden upon. Under the columns of the front doors of

(Murphy and Olmsted, Architects; Maginnis and Walsh, Associate Architects.) PLATE 198

The Interior, Looking towards the Sanctuary
SACRED HEART CHURCH, WASHINGTON, D. C.

certain Romanesque churches (San Zeno, Verona, Plate 93; Altamura Cathedral, Plate 36), one observes chiseled crouching lions; these represent the evil one being forcibly burdened.

The sea-eagle plunging in the waters to catch fish is a symbol of Christ's quest for sinners. The waters represent the world, while the fish are men whom our Lord takes to Himself. The eagle is also the symbol of St. John the Evangelist.

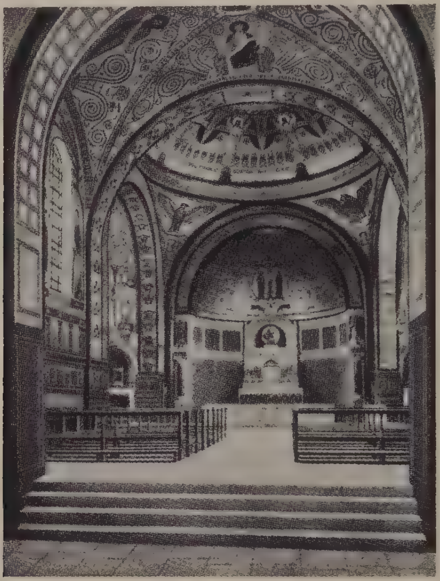
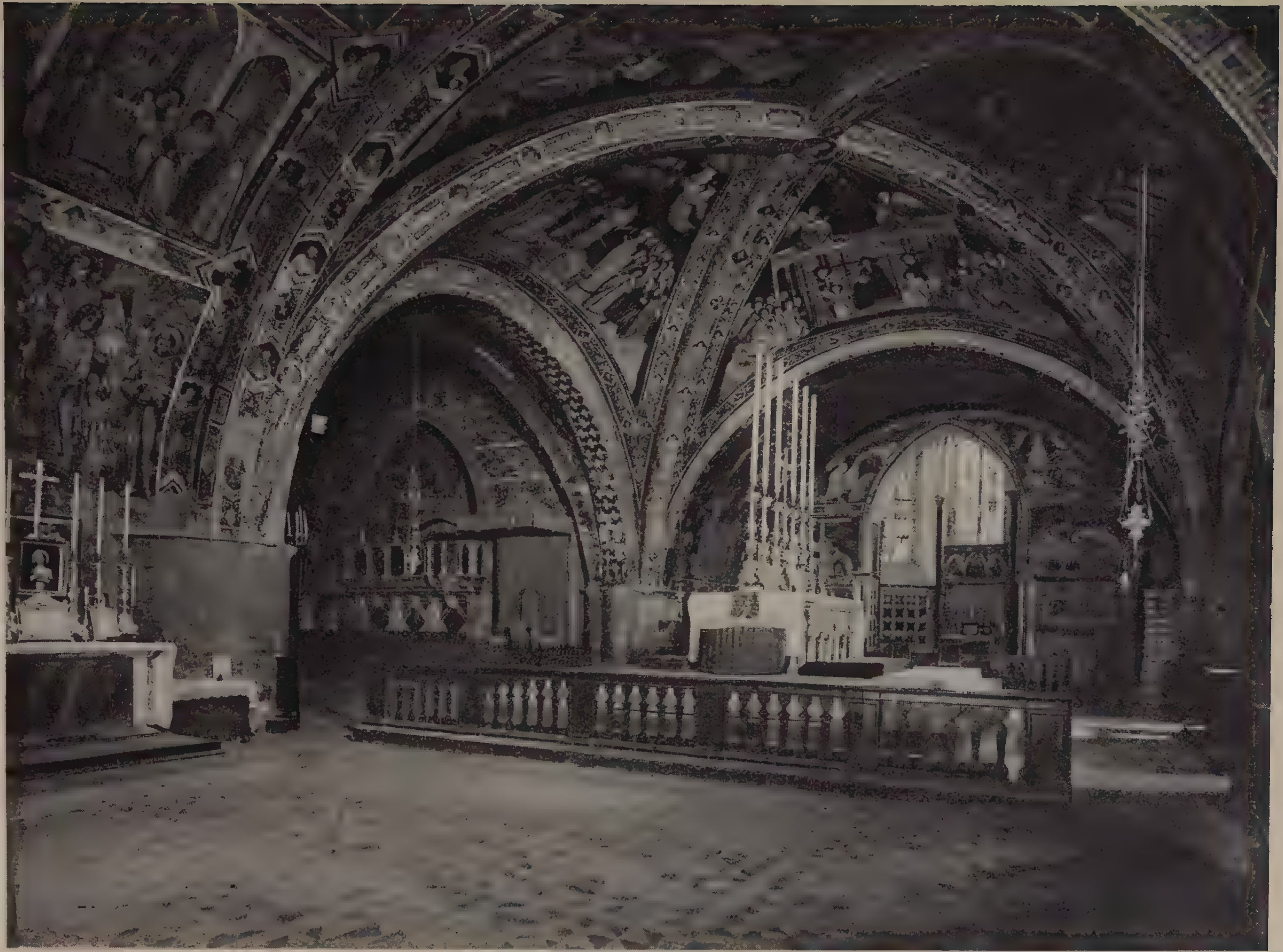


PLATE 199

An example of the Beuron School of Decoration
MEMORIAL CHAPEL, GERMANY (MODERN)

Several oxen are portrayed near the tops of the West towers of the Cathedral of Laon. This is a testimony to the services performed by oxen in drawing the heavy stones used in the building. The winged ox is the symbol of St. Luke, while a winged man is that of St. Matthew.

The peacock is the symbol of immortality. Moreover, it stands for vigilance because it has numerous tail-feathers with eyes. The mythical phœnix, a bird which, when consumed by fire, arose in three days from its ashes, is another symbol of the Resurrection. The hart signifies the soul thirsting for the waters of Baptism. When the crucifix is placed on



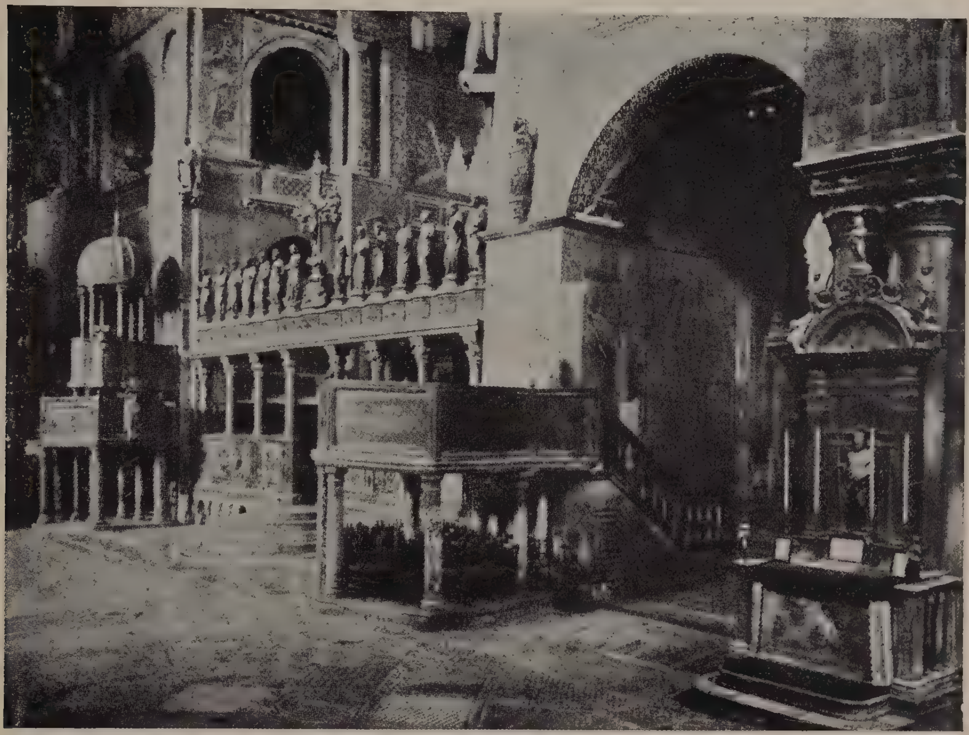
The Interior of the Lower Church PLATE 200

CHURCH OF ST. FRANCIS, ASSISI, ITALY

On the Church of St. Francis at Assisi (Plate 75) the artistic wealth of the ages has been lavished. There is a lower and an upper church, and in the former the altar is found under the crossing. Side chapels abound in the nave and transept of this Latin cruciform plan. The dim religious light of which the poet, Milton, sings is present in this lower church in all its mysterious loveliness. The pavement is of red and white marble, and the small windows are filled with rich and lovely stained glass. The father of Renaissance painting, Cimabue, is represented in this church by a large painting over the altar of the Immaculate Conception—a Madonna holding the Christ Child. There are also several wonderful paintings from the brush of Giotto.

its antlers, the hart stands for St. Hubert. (See door to St. Hubert's Chapel, Plate 82.)

The serpent and the dragon are symbols of the evil one, but the first also represents prudence. Gargoyles and such grotesque figures on the exteriors of churches symbolize the expulsion of evil spirits from the building. The goat and wolf are also representative of Satan, while the fox stands for cunning and craftiness. Filial piety is symbolized by the stork and purity by the ermine.



The Interior PLATE 201

ST. MARK'S CATHEDRAL, VENICE, ITALY

The interior of St. Mark's (Plate 20) is remembered by travellers principally for its wonderful decorations in glass mosaic and its exquisite marble-covered walls. The floor, a work of the twelfth century, is of stone and marble mosaic. Note the ambones on each side of the screen.

The hen and her brood stand for God's bounty, the hyena for vice, and the horse for war. The pelican is an emblem of Christ's passion, and a pelican with a nest is occasionally found on top of a crucifix.

The dog symbolizes fidelity, the crocodile dissimulation. The caterpillar is the symbol of life, the chrysalis that of death. The butterfly is the emblem of the Resurrection, the bird of the human soul, the bee-hive of eloquence, while the bees themselves represent chastity, purity, labor, and busy forethought. The boar is symbolic of sensuality, the bear of self-restraint, the ass of sovereignty and peace, the ape of inappropriate levity, and the ant of industry.

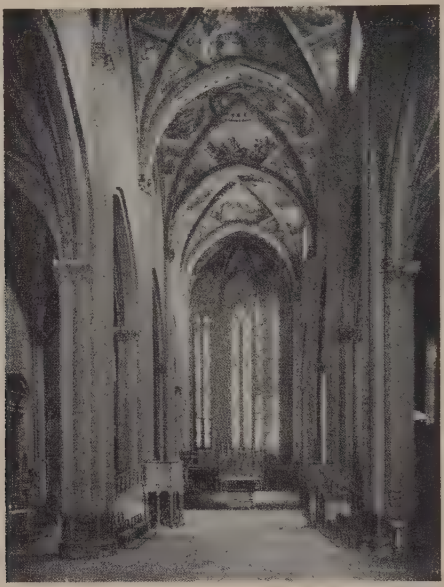


PLATE 202

The Interior

CATHEDRAL OF AREZZO, ITALY

This view illustrates the lofty proportions found in many examples of Italian Gothic of the thirteenth century. The nave arcades are widely separated by high clustered columns, and shafts on the nave side rise to carry the ribs of the nave vaults. Windows in Italian churches, due to climatic conditions, are as a rule small; hence the large windows of the apse give to this interior a decidedly Northern appearance. The rich decorations of the vaults are all the more beautiful in contrast with the plain surfaces of the clerestory walls.

Flowers and fruits play no inconspicuous part in symbolism. Flowers are the emblems of goodness. The flowers of heaven are violets, strawberries, carnations and lilies. The lily is the emblem of purity and of the Virgin. The fleur-de-lis is preëminently symbolic of the Queen of Heaven. Lilies also stand for heavenly beatitude and celestial bliss.

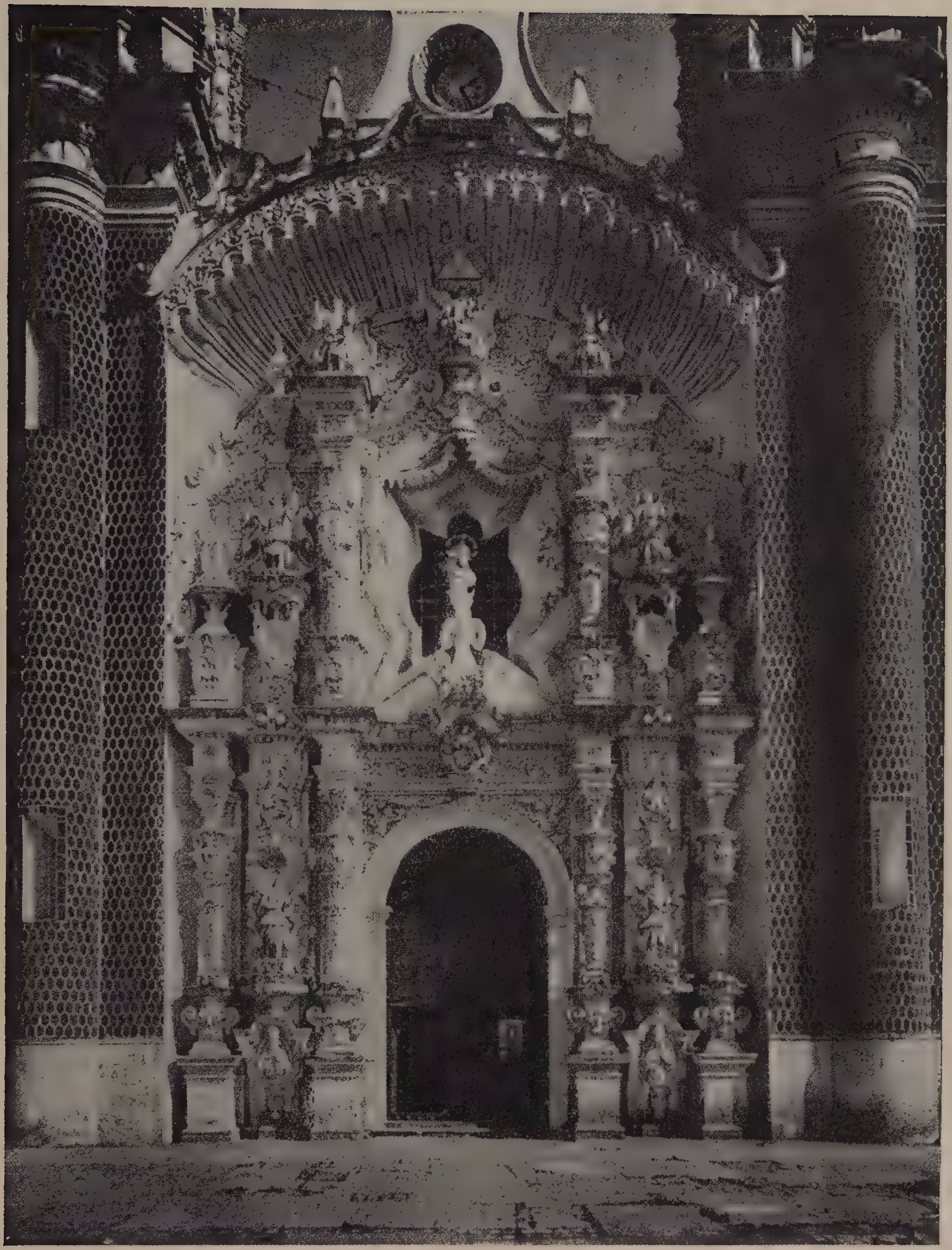


PLATE 203

COLLEGE OF OCOTLAN, TLAXCALA, MEXICO

The portal which is the subject of this illustration forms a specimen of the wonderful architecture fathered by the Catholic missionaries in the American Colonies. They were able to accomplish such wonders, it is said, with the aid of architects, sculptors, and master-workmen sent over from the mother-country, Spain. When it is remembered that these few directing minds had only the simple Indians to aid them, one marvels at the beauty of composition, proportion and workmanship displayed by such magnificent examples of art. The subject here depicted is a gorgeous piece of Decorative architecture. It corresponds in type to the Churrigueresque style of the latter part of the seventeenth century in Spain, so-called because the name of the architect who invented the type of decoration was Churriguera. The great stone niche is filled with ornament. Flanking the niche, architecture of a comparatively plain type is seen, and this tends to bring out the central ornamental portion in a striking way. The dark openings—namely, the doorway and the medallion-shaped rose window—are well formed and well placed in the beautiful, gorgeous and exuberant Churrigueresque background.

Of humility, the lily of the valley is the emblem. The olive stands for peace and healing, and the palm for the victory over Satan and sin. The rose is the flower of the Blessed Lady, of martyrdom and of divine love.

Grapes, when shown standing alone on a stem, are representative of unity. When the vine is shown with twelve bunches of grapes, it signifies the Twelve Apostles, and Christian souls are represented by birds in the branches. The vine, however, is a symbol of both our Lord and the Church.

The Sanctuary PLATE 204

CATHEDRAL OF ST. LOUIS, MO.

(Barnett, Hayes and Barnett, Architects.)

The poppy flowers of late summer are symbolic of sloth, the elder of zeal, and the jasmine of hope. The Seven Gifts of the Holy Spirit are indicated by the columbine. The violet and convolvulus are symbolic of humility, the daisy of the perfect innocence of the Divine Child, while the cyclamen is the symbol of voluptuousness.

The fruit of Paradise is generally the cherry. The pomegranate is symbolic of the Resurrection, while the fruit of the spirit is represented by garlands of fruits. The fruit of the strawberry indicates good works.

The mirror is the symbol of prophecy; the rod, of office; the ring, of power, while the orb stands for sovereignty. The anvil signifies death, arrows pestilence, ashes penitence, and a heart charity.

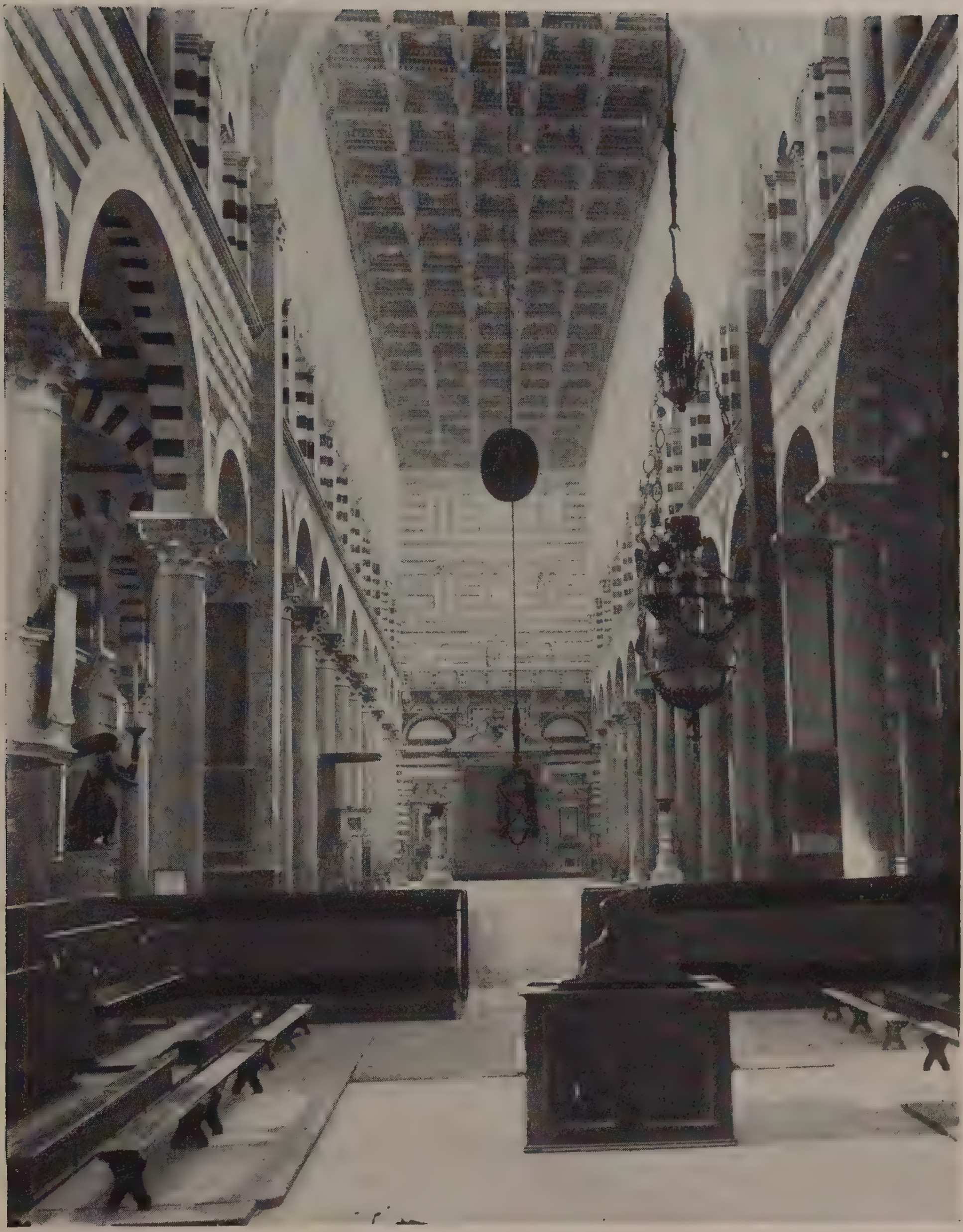
Numbers also have their significance, and they form a most fruitful source for symbolic application. The number *one* stands for divinity; *two*, for the two natures of Christ; *three,* for the Holy Trinity, the Wise Men from the East, the militant, suffering and triumphant Church, the monastic vows, and Faith, Hope, and Charity, etc.; *four* stands for the Evangelists, the Major Prophets of the Old Law, the cardinal virtues, the rivers of Paradise, the seasons of the year, the points of the compass, and the corners of the earth; *five,* for the Sacred Wounds of Christ, the five Joyful, Sorrowful and Glorious Mysteries of the Rosary,

(Edward J. Weber, Architect.)
(F. B. Lieftuchter, Decorator.)

PLATE 205

Fresco Over Altar in Transept

ST. JOSEPH'S CATHEDRAL, WHEELING, W. VA.



The Interior, showing the Nave PLATE 206

CATHEDRAL OF PISA, ITALY

The interior of this cathedral has a strongly marked individuality. The plan is cruciform, with double aisles for the nave and choir and single aisles for the transept. In a manner very unusual, the same sloping roof carries across the double aisles. The nave roof is of timber, enclosed on the bottom chords with a rich and beautiful coffered ceiling of Renaissance pattern. There is a large apse at the East end, and smaller ones at the ends of the transept. In the nave there are sixty-eight columns, which, we are told, are Greek and Roman antiques found on board the ships which were captured from the Saracens by the Pisan fleet in the harbor of Palermo, Sicily, when the latter essayed to aid the Normans in freeing Sicily from Mohammedan domination. The capitals of the columns are Corinthian and Composite. The columns are ranged as in Early Christian basilicas with semicircular arches over them. The beautiful triforium arcade is composed of alternating piers and columns sustaining arches, each pair of which is enclosed by a greater arch springing from the piers. The light and dark marbles used on the exterior are ranged in horizontal bands.

the commandments of the Church, the wise and foolish virgins, and the liturgical colors of the priestly vestments, etc.; *six,* for the days of creation and the sins against the Holy Ghost; *seven,* for the Sacraments, the Gifts of the Holy Ghost, the deadly sins, the planets, the days of the week, and the Penitential Psalms, etc.; *eight,* for the beatitudes; *nine,* for the choirs of Angels; *ten,* for the Commandments and the great persecutions; *eleven,* for discord and sin. The symbolists have yet to venture beyond the number *twelve,* which is exceedingly rich in apt symbolisms:

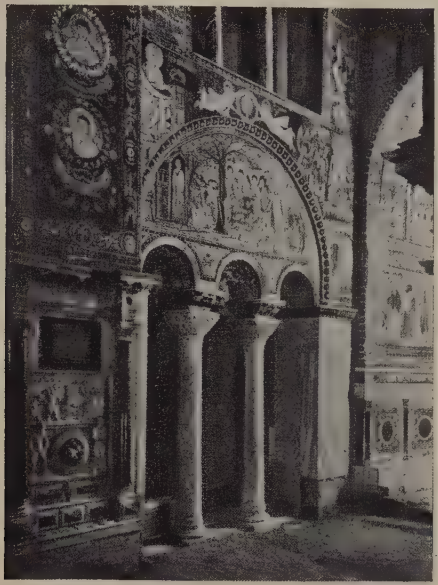


PLATE 207

Choir with Sanctuary Arch at left

CHURCH OF SAN VITALE, RAVENNA, ITALY

The Church of San Vitale, constructed in the Byzantine style (526–547), was founded by the Emperor Justinian in thanksgiving for his recovery of the town of Ravenna. The nave is octagonal in plan and 55 feet in diameter; the aisles surrounding it make the over-all dimension of the church 115 feet. The aisle stops at the choir, terminating at the three openings shown in the illustration (which are on each side). The choir, which has no aisles, is of the width of one of the sides of the octagonal nave, and continues Eastward to form a sanctuary apse of the width of the choir. The aisles are two stories high and a dome covers the nave, while a barrel vault surmounts the choir. The remarkable features of the interior are the beautifully executed mosaics which extend everywhere over the walls and ceilings, the marble columns of many hues, and the exquisitely carved capitals of the columns.

it stands for the Apostles, the tribes of Judah, the months of the year, the signs of the zodiac, etc.

Colors, too, have their significance. Red symbolizes strength, love, and martyrdom, and it is also the symbol of fire. Yellow means constancy and wisdom, but also envy. Blue is for faith, loyalty, spotlessness, and heavenly contemplation. Green is symbolic of hope, fidelity, immortality, and the contemplative life. Purple is for a bishop or royalty. White represents light, faith, and innocence. Gray and brown are the colors of penitence or humility. Black betokens sorrow, death, and sin. Gold is the hue for heavenly glory and brightness.

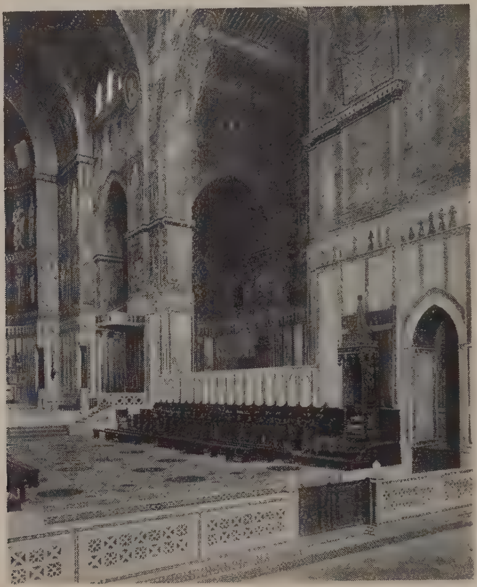


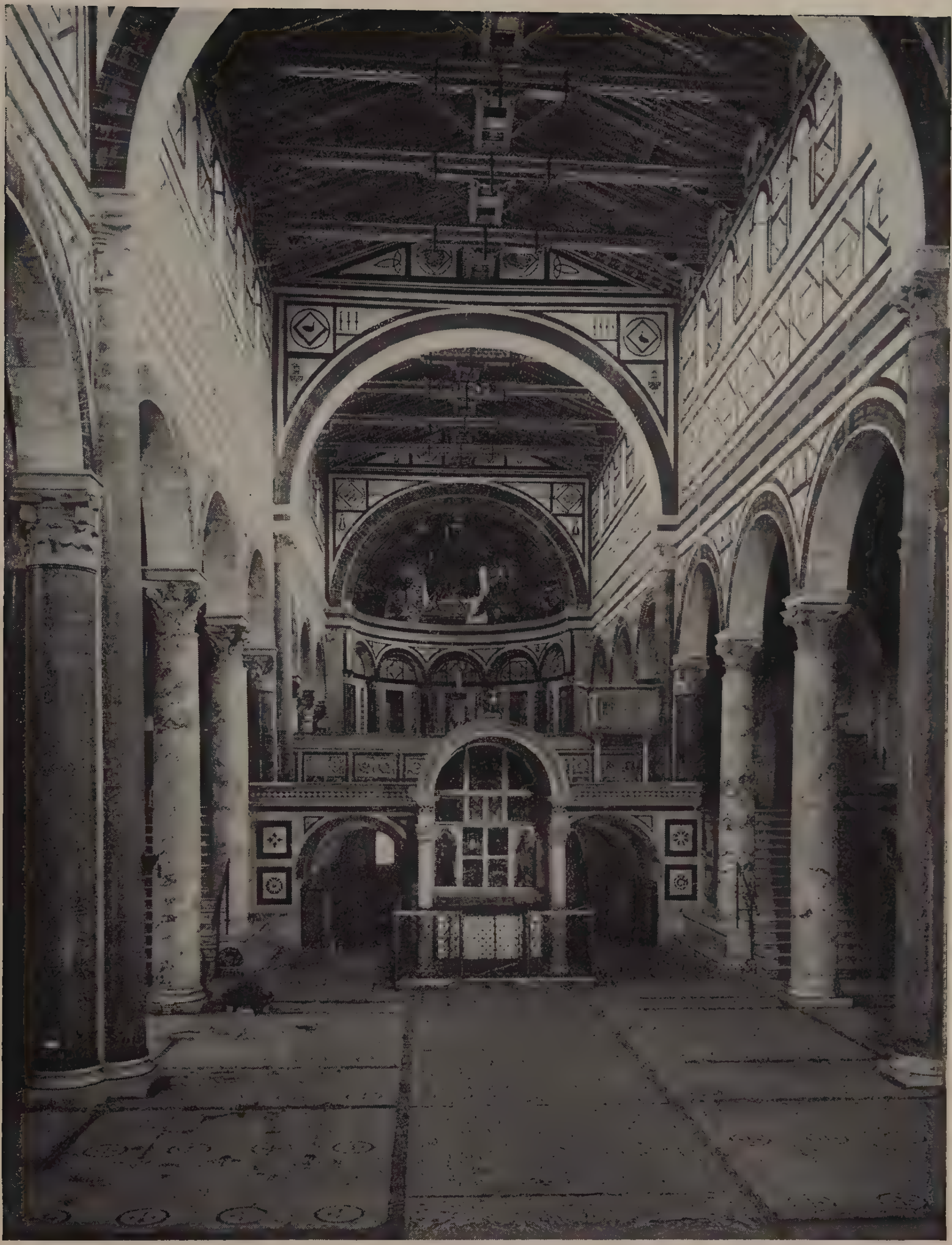
PLATE 208

View of Choir

CATHEDRAL OF MONREALE, SICILY

This illustration gives an excellent view of the richness of the mosaics and the superb interior decorations of Monreale Cathedral, described under Plate 222. Note the marked absence of moldings, sculpture, and other architectural features that is apparent in this and other edifices in which Byzantine influence may be traced. The sublime dignity of these interiors was attained by the elaborate use of color and beautifully proportioned arches and arcades. Mention should be made of the beautifully pierced marble railing and bronze gates of modern workmanship that separate the choir from the nave.

Perhaps one of the most interesting divisions of the study of symbolism consists in that devoted to the symbols that go hand in hand with



The Interior PLATE 209

CHURCH OF SAN MINIATO, FLORENCE, ITALY

The Church of San Miniato was founded in 1013. In plan, it has a nave of nine bays, divided longitudinally by piers into square compartments of three bays each. In this way it differs from the Early Christian basilicas. The Easternmost compartment is raised by many steps, and forms underneath a *confessio,* which is open towards the nave and contains the Saint's tomb. The apse has in its windows translucent marble instead of glass. The panelling, banding and ornaments in black and white marble form a striking effect. Exquisite marble columns and the tessellated marble floor, together with the open trussed roof painted in vermilion, azure and gold, contribute towards making this church a perfect gem of Italian art.

painted, wrought, or otherwise delineated representations of the Saints. The Blessed Virgin carries the Christ Child, and crushes the serpent under foot. St. Joseph holds a staff from which sprouts a lily, while St. Ann is shown teaching the youthful Blessed Virgin from a scroll. A Pope wears his tiara, a Cardinal his hat with tassels, and a Bishop his mitre. St. Dominic is represented with a star on his forehead and a lily; a figure of St. Francis manifests the stigmata, and St. Anthony is shown with a pig accompanying him. St. Elizabeth of Hungary holds flowers in her lap, while Mary Magdalene carries a jar of ointment. With a wheel St. Catherine of Alexandria is depicted, while St. Agnes appears with a lamb. The keys are symbolic of St. Peter, the sword of St. Paul, the X-cross of St. Andrew, the dragon of St. George, the staff and scallop

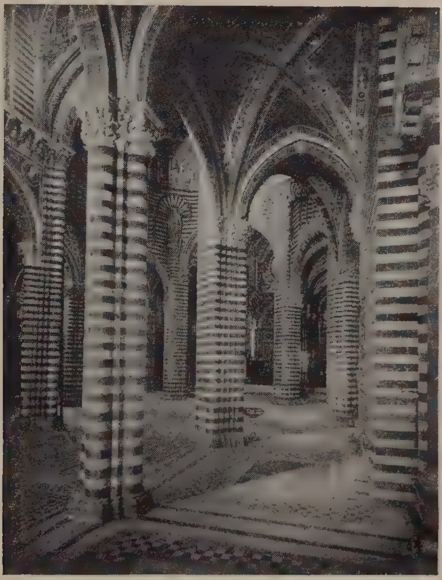


PLATE 210

South Aisle of the Nave, looking East

CATHEDRAL OF SIENA, ITALY

This view of Siena Cathedral (Plate 108) shows the interesting scheme that the architects have worked out with the pillars and arches which surround the hexagonal crossing. Observe the constructional squinch arches, which occur over the statues standing on pillars in the angles of the hexagon. In the spandrels of the nave arches are well-carved busts of the Sovereign Pontiffs. The aisle vaults have decorations worthy of admiration, while the floors will repay deep study. The latter are mentioned elsewhere in this work (see Chapter IX on *Church Decorations*).

shells of St. James, the bee-hive of St. Ambrose, and the shamrock of St. Patrick. There are also the patron saints of guilds, trades, and professions. St. Joseph is the patron of carpenters, St. Giles of cripples, St. Aloysius of youth, and St. Thomas of architects. St. George is the patron saint of England, St. Denis of France, St. Boniface of Germany, St. Andrew of Scotland, St. Patrick of Ireland, and so on.

Architects and ecclesiologists of the early Christian times represented the material Church of the New Law in their mosaics. At that time and later, there were often delineated two contrasting figures of buildings—the Church of the New Law and the Synagogue of the Old. On occasion, pictures of the towns of Bethlehem and Jerusalem are used to symbolize the New and Old Law, and portraits of St. Paul, the Apostle of the Gentiles, and St. Peter placed opposite to each other serve the same purpose. In the Middle Ages, the Church was often represented by a female figure with sceptre and crown, holding the

PLATE 211

(A. F. Link and Associates, Architects.)

The Interior Looking towards the Sanctuary

ST. BONIFACE'S CHURCH, PITTSBURGH, PA.

chalice of salvation, while the temple or synagogue was represented by a blindfolded figure with her staff broken as in defeat.

The churches in medieval days were set out and rendered into a language of symbolism that was readily understandable by the burghers and peasants of the time. Not only did the medieval liturgists rack their brains to find symbolic figures for the work on churches already executed, but the generations that followed welcomed their pious and ingenious inventions, and strove to render themselves worthy of the teachings of the ancient liturgists by the artistic incorporation of their spiritual conceptions in the new churches.

(Decorations by Francis Aretz.) PLATE 212

The High Altar and Sanctuary

CAPUCHIN MONASTERY, WASHINGTON, D. C.

John Ruskin, to quote again from his "Lectures on Architecture and Painting," says: "In mediæval art, thought is the first thing, execution the second; in modern art, execution is the first thing, thought the second. And again, in mediæval art, truth is first, beauty second; in modern art, beauty is first, truth second."

The Temple of the Old Law is a symbol of the Church of the New.

God revealed to David how the Temple was to be built; such being the case, what can be more fitting than a correctly planned church, which, like the great cathedrals of the thirteenth century, resembles essentially the Temple of Jerusalem? If one regards a plan and longitudinal section of the Temple, one can readily see the similarity. In proof of this statement, let us examine the main essentials in the architectural composition of the Temple at Jerusalem. Contrary to the modern church but identical with the early Christian churches, the door of the Temple opened to the East. Arranged in the following order from West to East, the Temple was composed of, first, the *Debir* or Holy of Holies containing the ark; second, the *Hekal* or Holy Place, *i.e.,* the place of the

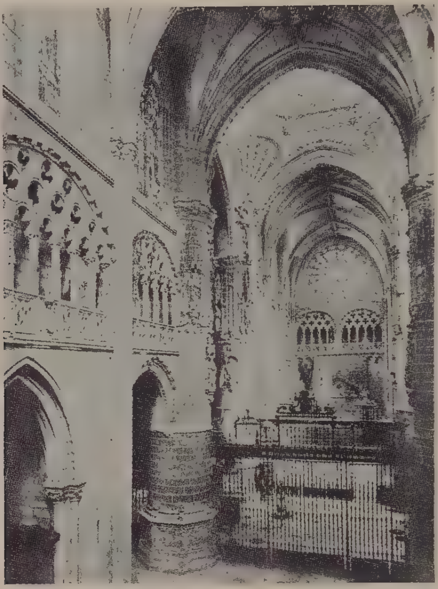
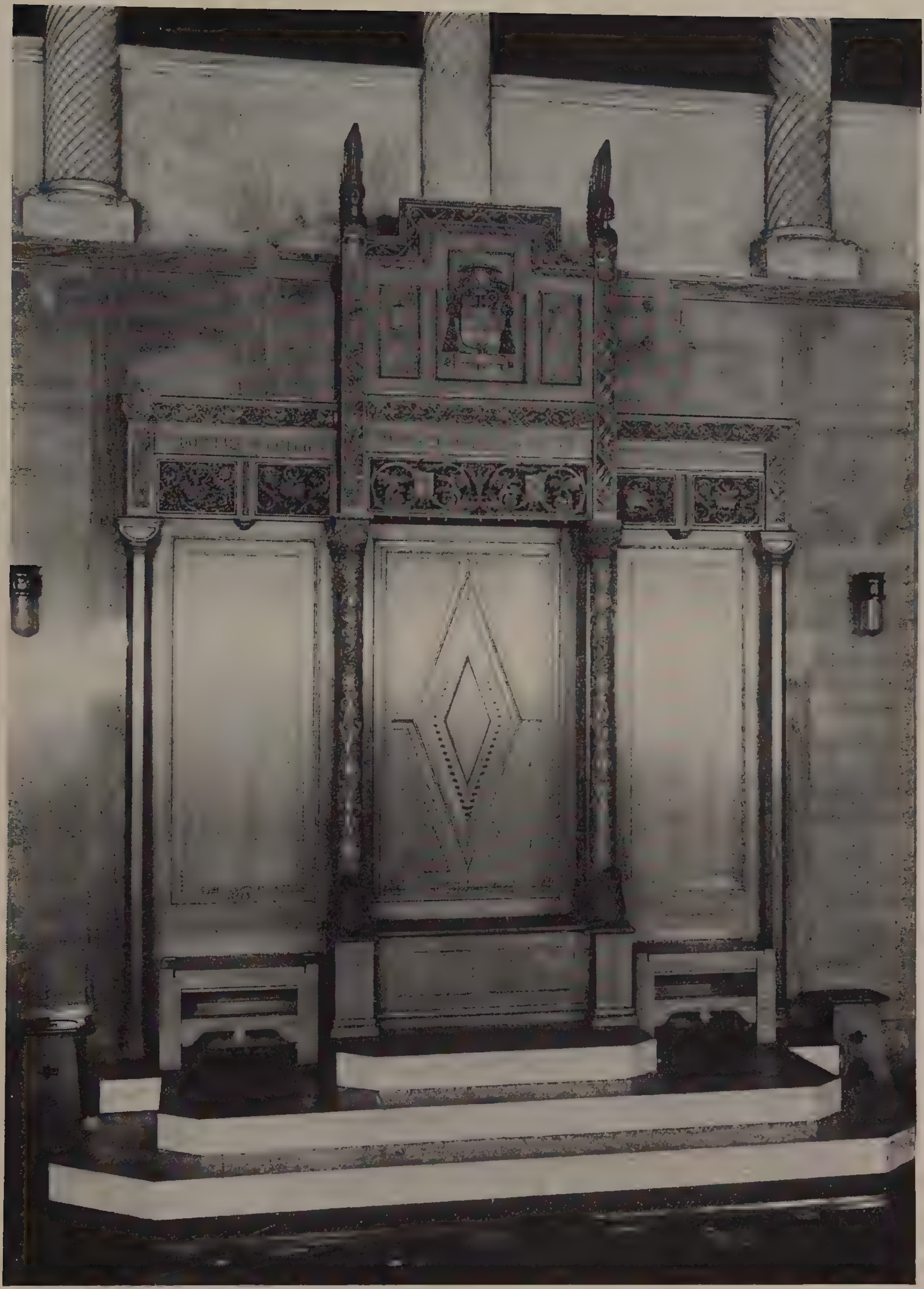


PLATE 213

The Interior of the Transept

CATHEDRAL OF BURGOS, SPAIN

Burgos Cathedral (Plate 7) has a *cimborio* or lantern over the crossing which is of great magnificence on both the inside and the outside. A tower of pure Gothic style was replaced by the present tower in the Transition style when the former collapsed at about the beginning of the Renaissance period. The four piers of the crossing and adjacent work were rebuilt from the ground in the Transition style. The difference in style can be seen principally in the capitals, moldings and bases of the great round piers, and in the shell-shaped pendentives under the octagonal part of the lantern.

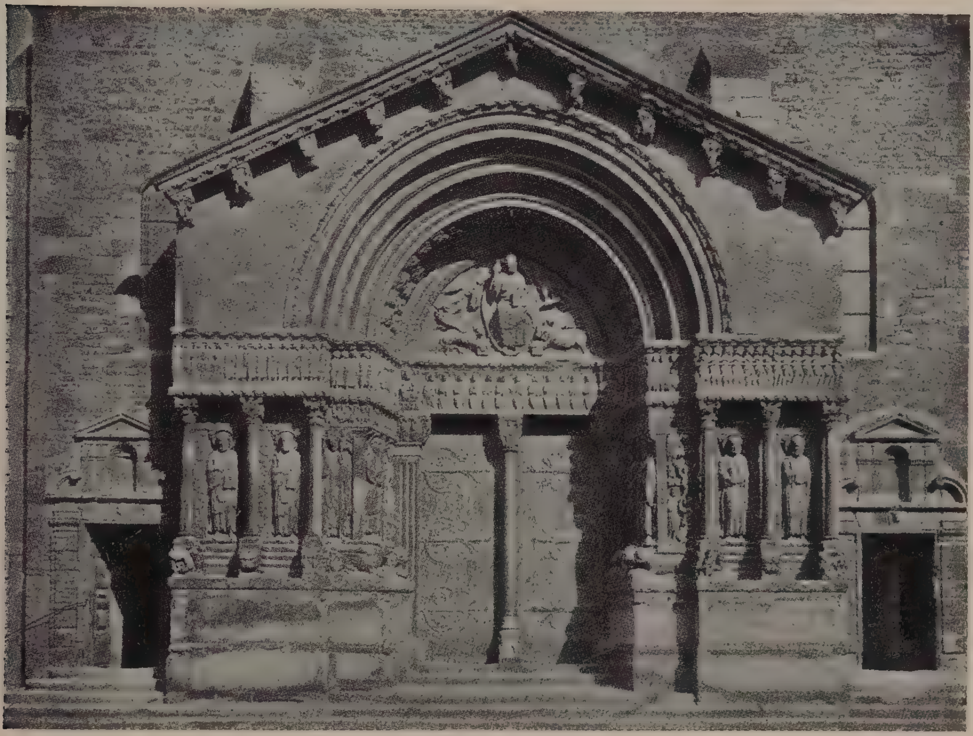


(Edward J. Weber, Architect.) PLATE 214

The Bishop's Throne

ST. JOSEPH'S CATHEDRAL, WHEELING, W. VA.

priests; third, a high entrance porch like a tower, and fourth, an outer court for the laymen or faithful. Bordering on the conjoined *Debir* and *Hekal* were chambers or sacristies on the North, South and West sides. If the lines of the chambers or sacristies had been continued Eastward to the front of the outer court, and if at the same time the open court had been roofed over, it is obvious that something quite similar to the plan of a Gothic cathedral of the thirteenth century would have materialized. In this plan the *Debir,* or holy of holies, corresponds to our sanctuary; the *Hekal,* or holy place, to our canonical choir; the high entrance porch



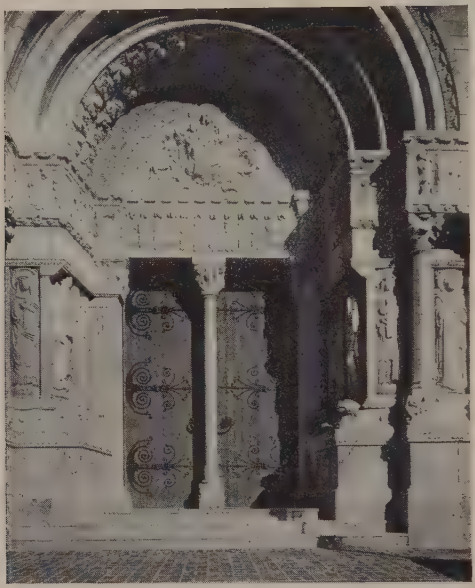
The West Portal PLATE 215

CHURCH OF ST. TROPHIMUS, ARLES, FRANCE

The date of this portal is 1150. The design is based on that of a Roman triumphal arch, like that of Titus at Rome. The arch is not round but slightly pointed. The large figures represent the Twelve Apostles. At the angles nearest the door are figures of St. Stephen and St. Trophimus. Christ as judge is shown in the tympanum, with the four beasts of the Apocalypse surrounding Him. In the frieze over the large statues are chiseled figures representing (on the North side) the souls of the blessed and (on the South) those of the lost.

to our tower over the crossing; the roofed-over outer court to our nave, and the bordering chambers or sacristies to the aisles of our nave and choir and the sacristies of our sanctuary.

The medieval cathedral was cruciform in plan like that of the Latin Cross. The apse or Eastern end represented the head of Christ, and the plan of the church was often made to bend to the North at this point to represent the head of our Lord drooping to His right side at His death.



(Courtesy of "The American Architect.") PLATE 216

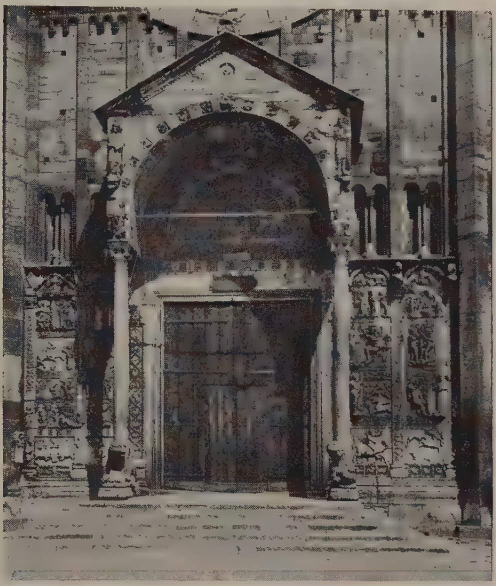
Entrance to Chapel of Our Lady of Victory

ST. CATHERINE'S COLLEGE, ST. PAUL, MINN.

(H. A. Sullwold, Architect.)

The North and South wings of the transept represent respectively the right and left hand of our Saviour, while the main portal at the West is meant for His feet. The two wings of the transept, the central tower at the crossing of the nave and transept, together with the two towers at the West front, are symbolic of the five wounds. The circlet of radiating chapels around the apse signify the crown of thorns. Examples are the Cathedral of Le Mans (Plate 19) and the Plan of Amiens (Plate 126).

The church is so orientated that it permits all to face East when kneeling at prayer, so that they look in the direction of the light, the rising sun. The Gospel is read from the North side, for there the heathen barbarian was to be found. The door of the church is the "porta cœli," for the door is the symbol of our Lord. Christ represented as a young man carrying his sheep (depicted in the Catacombs), or surrounded by his sheep, is often found over the door. The doorway at the West was often triple to represent the Three Persons in the Triune



(Photograph by Ewing Galloway, N. Y.) PLATE 217

The Main Portal

CHURCH OF SAN ZENO, VERONA, ITALY

Italian Romanesque architecture is here portrayed in its greatest purity of detail and its most elegant proportions. The elongated marble columns resting on crouching lions (signifying the evil one being forced to bear the load) have strength sufficient to sustain the arched porch roof. The pilasters surrounding the sacred sculptures on each side of the door, together with the pilaster bases, have an almost Early Christian appearance, and seem to have belonged to an earlier building. Note the beautiful sculptures that fill the tympanum over the door, and the two statues over the columns at the corners under the gable. A dignified and easy stairway of five steps leads to the broad platform in front of the door. The total height from the ground to the top of the cross on the porch is considerable, and the doorway opening is very wide. The whole building, indeed, is built on a monumental scale.

God, while a double door under one arch was symbolic of the dual nature of Christ.

A favorite place for representations of the Last Judgment in sculpture or stained glass was the West doorways for the sculpture and the windows over them for the glass, because the West was symbolic of the sunset of life.

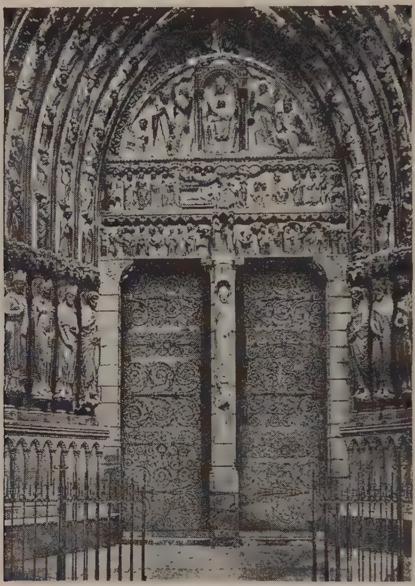


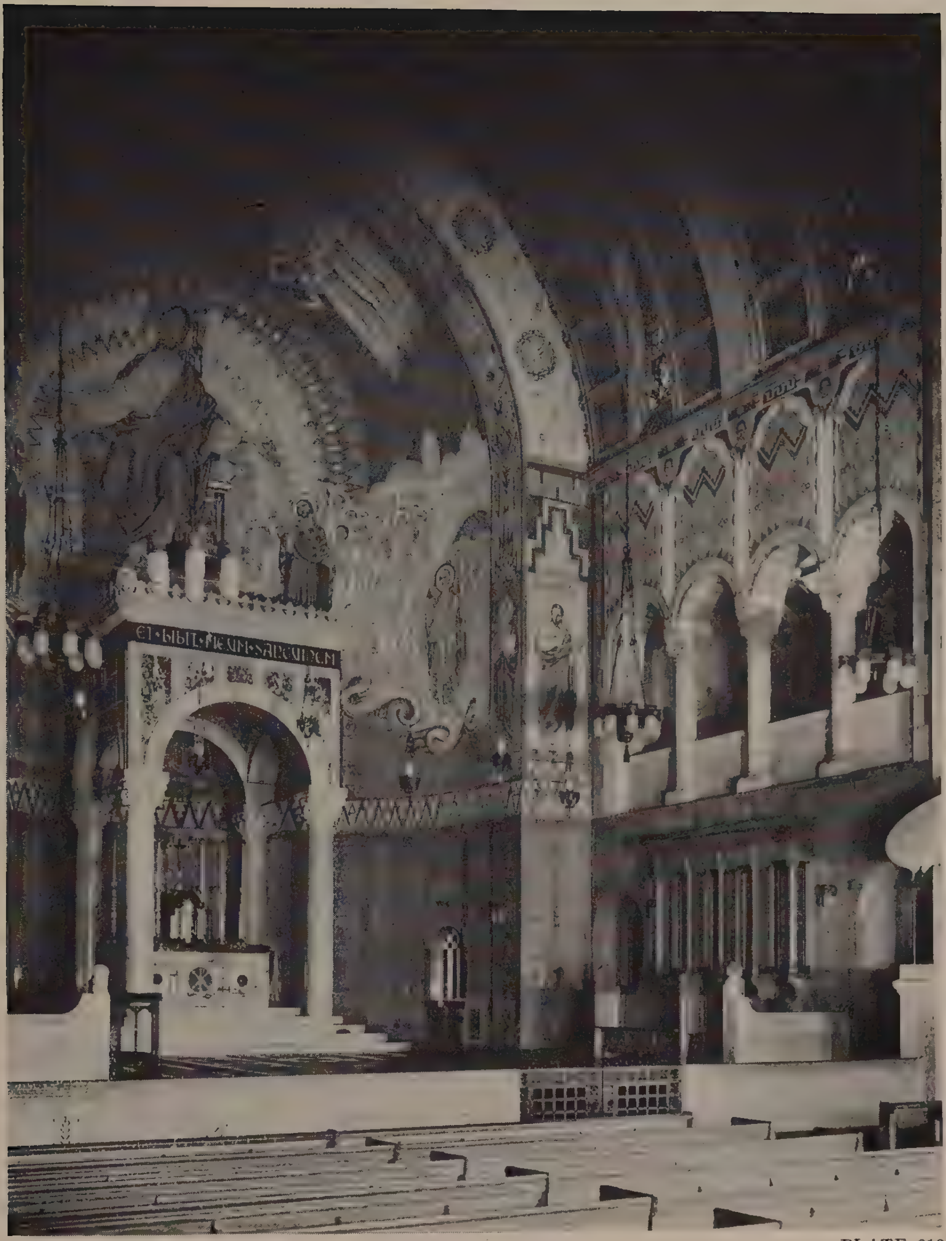
PLATE 218

South Door of West Front

CATHEDRAL OF NOTRE DAME, PARIS

This doorway, dating from the early years of the thirteenth century, is dedicated to St. Ann, who is shown enthroned in the center of the tympanum under the arch. That the general design, scale and proportions are perfection itself, is the universal opinion. After the iconography, the beautiful symbolism and the sculpture, the most interesting feature of the composition is its remarkable wrought-iron hinge plates, of which no two are of the same pattern. That they nearly cover the woodwork of the door leaves, is not only an æsthetic asset, but likewise a practical one, for these masterpieces of smithcraft tend greatly to strengthen the doors.

The Church is called a ship—the "boat" or "ark" of Peter. The place which contains the faithful (*i.e.,* the nave) is called in French the "nef" (Latin, *navis,* ship). Indeed, if one regards the ceiling of a Gothic vaulted church, the resemblance to a ship is not far to seek, for the ceiling is water-tight, and the vaulting ribs remind one of the bones



(Edward J. Weber, Architect.) PLATE 219

The Sanctuary, Showing Nuns' Gallery

ST. JOSEPH'S CATHEDRAL, WHEELING, W. VA.

of the hulk of a ship turned down side up. The bishop is the helmsman who steers this ship, his position being at the helm or head (*i.e.,* in the

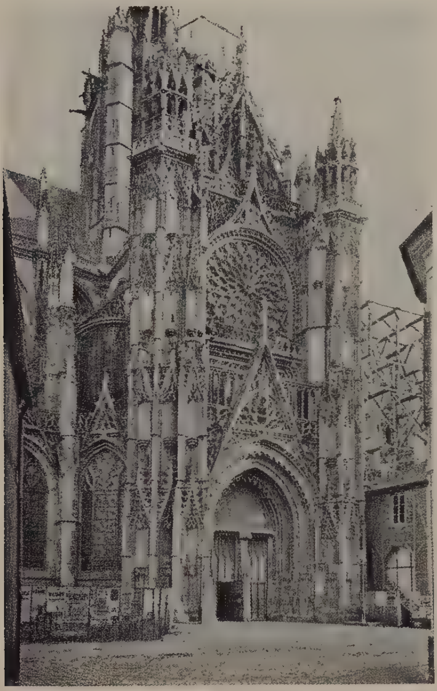


PLATE 220

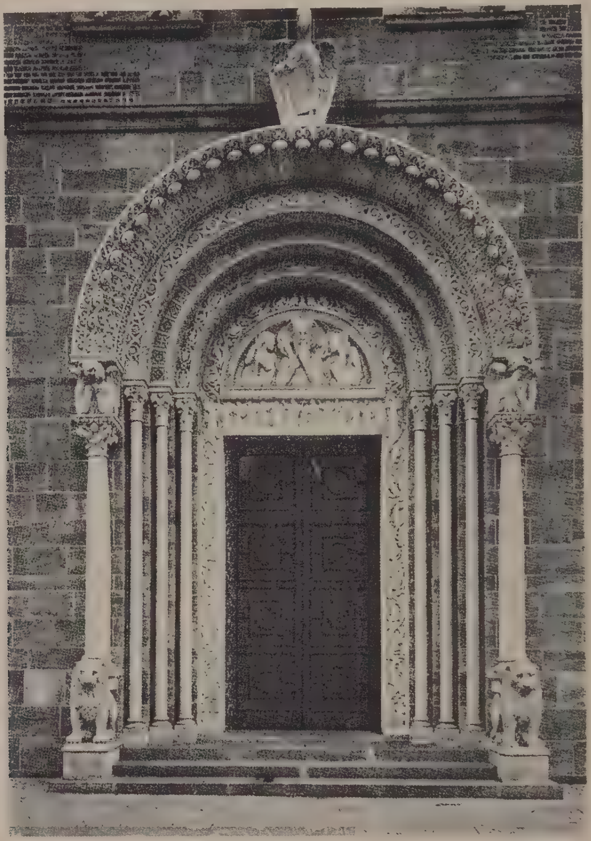
North Wing of Transept

CATHEDRAL OF EVREUX, FRANCE

The North wing of the transept of Evereux is Late Gothic, and belongs to a period between the years of 1511 and 1574. A great series of tabernacled niches are formed on the two hexagonal piers on each corner of this façade. The voussoirs of the arches over both the entrance and the rose window are overhung as by a veil with arched serrations. In the orders of the portal are lacking the rows of adoring Angels and Saints that are generally found in earlier Gothic. The gable over the doorway is pierced with tracery and foliated carvings, while the rose window is a piece of lacy Flamboyant tracery. The doorway is set well out toward the front of the great hexagonal piers, and the rose window recedes considerably. Over the rose arch is an ogee arch intersected by a traceried balustrade, back of which rises the main roof gable, pinnacled and profusely carved with crockets and traceries. The hexagonal piers are topped out in an exquisite manner with feathery pinnacles. The traceries of the aisle windows of the choir, the pierced flying buttresses, and the fine pinnacles topping the buttresses shown at the left of the picture, are well worthy of notice.

sanctuary). The Ark of Noah saved from the deluge is symbolic of the Church.

The Church is the *cælestis urbs Jerusalem.* Thus, it is only natural that all the wealth and art of many peoples and nations were bestowed upon it. Christ is the cornerstone of the Church, while the Apostles, doctors and bishops are the pillars, the rôle of the small stones being played by the faithful.



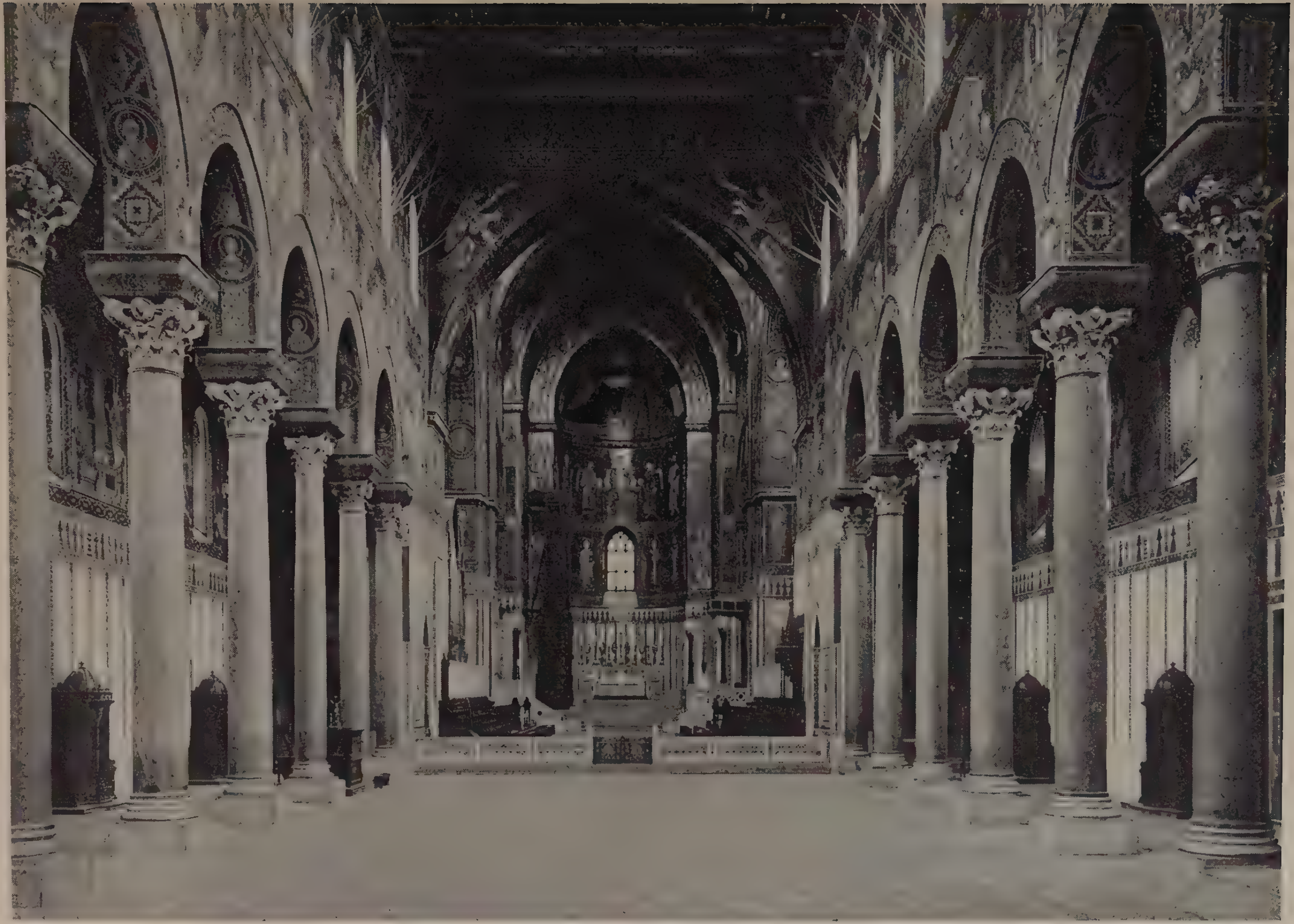
(Courtesy of "The American Architect.") PLATE 221

The Main Portal

CHURCH OF ST. JOHN NEPOMUK, NEW YORK CITY

(John Van Pelt, Architect.)

Four great pillars under the crossing tower are symbolic of the four Evangelists, and the bases under them represent the four major Prophets of the Old Law. In the cruciform plan of the church, the upright member (the nave, choir and sanctuary) and the cross-arm (the transept) represent the Old and the New Testaments combined into one.



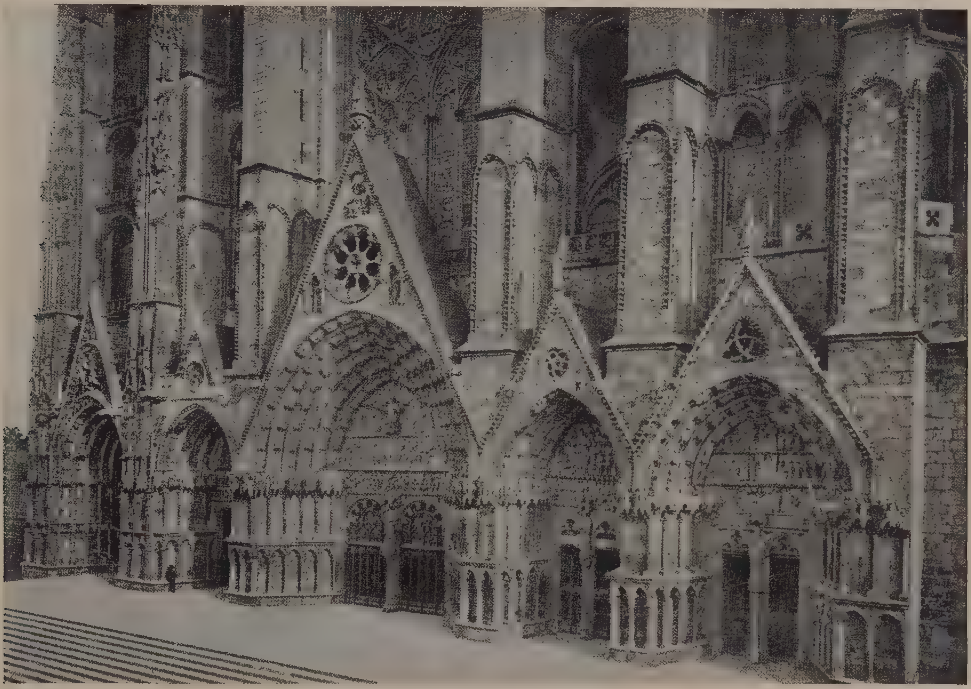
View of the Nave

PLATE 222

CATHEDRAL OF MONREALE, SICILY

This Cathedral was begun in 1174, some time after the Norman conquest, and displays a beautiful mixture of Byzantine and Norman influences. In plan, the building resembles a Roman basilica, with apses at the Eastern ends of nave and aisles. The choir is raised above the nave. All columns have well-covered capitals (of a Byzantine form) supporting pointed arches, while the soffits of the arches are flat and not in recessed planes as in Northern work. The aisles have pointed windows without tracery. The interior is ornamented with mosaics in gorgeous colors representing Biblical scenes. A high dado of white marble slabs is bordered with inlaid patterns of colored porphyries. The interestingly designed timber roof is decorated in color. The whole effect is solemn and grand, the architectural features being subordinated to the rich mosaics which clothe the walls.

The plan of the church is divided into three parts—the narthex, atrium or vestibule for the catechumens, the nave for all the faithful, and the sanctuary for the sacred ministers. The two divisions of the church—that for the clergy and that for the laity—are symbolic of the celestial and terrestial categories, the spiritual and temporal spheres. These two parts had generally in ancient days some visible mark of separation besides the communion railing. Often a screen supported a Holy Rood on a gallery or loft at this point. Again, the Rood beam formed the demarcation, or a Rood or Crucifix was suspended from the ceiling. The triumphal arch of the Early Christian basilicas and the sanctuary arch of the English parish churches might also be mentioned as means

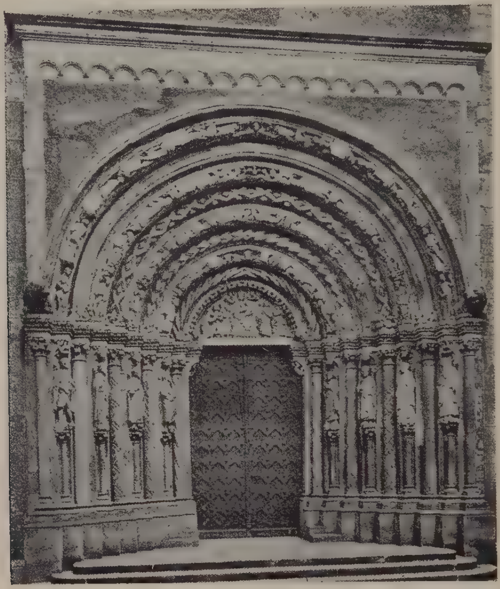


The Western Portals PLATE 223

CATHEDRAL OF BOURGES, FRANCE

Bourges is one of the few great Gothic cathedrals that were built without a transept. It dates from 1190 to 1275. Compared to cathedrals in England, its width is very great in comparison to its length. The sexpartite vault of the nave rises to a height of 125 feet. This cathedral has double aisles, the inner ones being higher than those on the outside. In this respect the building resembles Milan Cathedral. Its thirteenth-century glass is among the finest extant.

of separation. What can be more appropriate at this place of demarcation in the plan of the church than a great crucifix bearing the inscription: O CRUX AVE, SPES UNICA! As he looks in hope towards the sanctuary (that is, the spiritual division of the church), the Christian knows that through the cross and death of Christ his redemption is possible.



The Golden Gate PLATE 224

CATHEDRAL OF FREIBURG, GERMANY

The famous Golden Gate of Freiburg Cathedral is a fine example of German Romanesque art. In framing this deeply recessed portal, the architect has used ten orders on each side—eight Saints supported on colonnettes guard the door, while the orders in the arches are filled with figures, chevrons, lozenges, twists and leafwork. Filling the tympanum is a profusion of figures, while surmounting the arch is found a horizontal cornice raised above an arched corbel table.

The appropriate place for the baptistery is on the North side of the church. The reading of the Gospel, as previously stated, was directed towards the North, towards the heathen. The unbaptized child or adult approaches from the North, the side of darkness and unbelief. Because Baptism is conferred in the name of the Blessed Trinity, there is a continuous use of the number three. Three times the evil one is spurned, and there is a three-fold confession of faith and ablution with water. For this reason there should be three steps at the entrance descending into the baptistery. The descent serves also to convey the impression of a sepulchre. When these three steps are ascended to reach the church, it symbolizes the soul risen from sin. The descending steps to the baptistery also signify the sloping bank of the River Jordan where Christ was baptized.

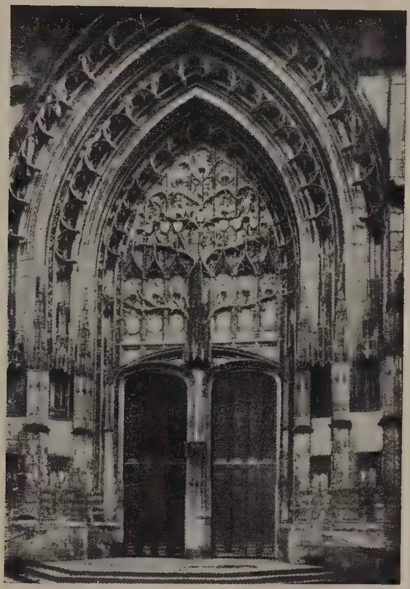


PLATE 225

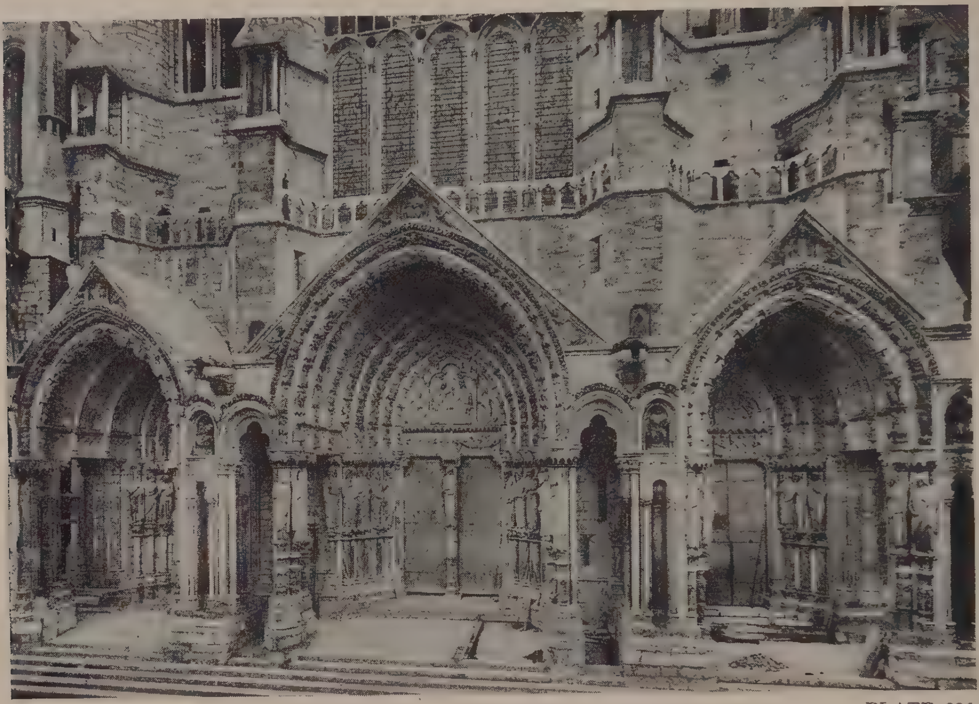
Portal, North Wing of Transept

CATHEDRAL OF BEAUVAIS, FRANCE

This portal of Beauvais Cathedral (Plate 116) has grandeur in its proportions, and is a marvel of intricacy and beauty in its details. Some notion of its great size might be gained by glancing at the steps at the bottom of the picture, each one of which measures about 6 inches in height. A Tree of Jesse adorns the tympanum over the twin doors. Its style is Late Flamboyant of the fifteenth century.

Appropriate shapes for the baptistery or baptismal font are the square, representing the four corners of the world (sin, from which the person is to be purged), or octagonal (which means perfection), or round (signifying the grace of God). Representations of the four rivers of Paradise (Phison, Gehon, Tigris and Euphrates), which sent their cleansing waters to all parts of the world, are seemly. These rivers are symbolic of the Apostles, who purged all by the waters of Baptism.

Often the font has its cover embellished with a standing figure of St. John the Baptist. Tableaux of the marriage feast of Cana, the River Jordan, the crossing of the Red Sea, and the hart panting after the fountain of water, are appropriate.



Portal of North Wing of the Transept PLATE 226

CATHEDRAL OF CHARTRES, FRANCE

In its thirteenth-century Northern portal, Chartres (Plate 25) has a unique specimen of art; for nowhere else in Gothic cathedrals can be found a triple porch composed in this manner. The central arch towards the front is carried on each side by a rich, clustered shaft containing statues. The four great piers under the arches are all pierced laterally. The figures of the Angels, Saints, Virgins and Martyrs, which fill the arches of this entrance, offer fine models for our modern artists. Among the myriads of beautifully carved figures none are more worthy of close attention than the fourteen figures of the Virtues.

The floor of the church, spurned under foot, is symbolic of sin; hence it had best not be embellished with representations of holy things. Figures calling to mind the seven deadly sins or the four sins that call to heaven for vengeance might well be placed there. The poor and needy and those who are heavily burdened are also represented by the floor, because of the burden the floor has to bear.

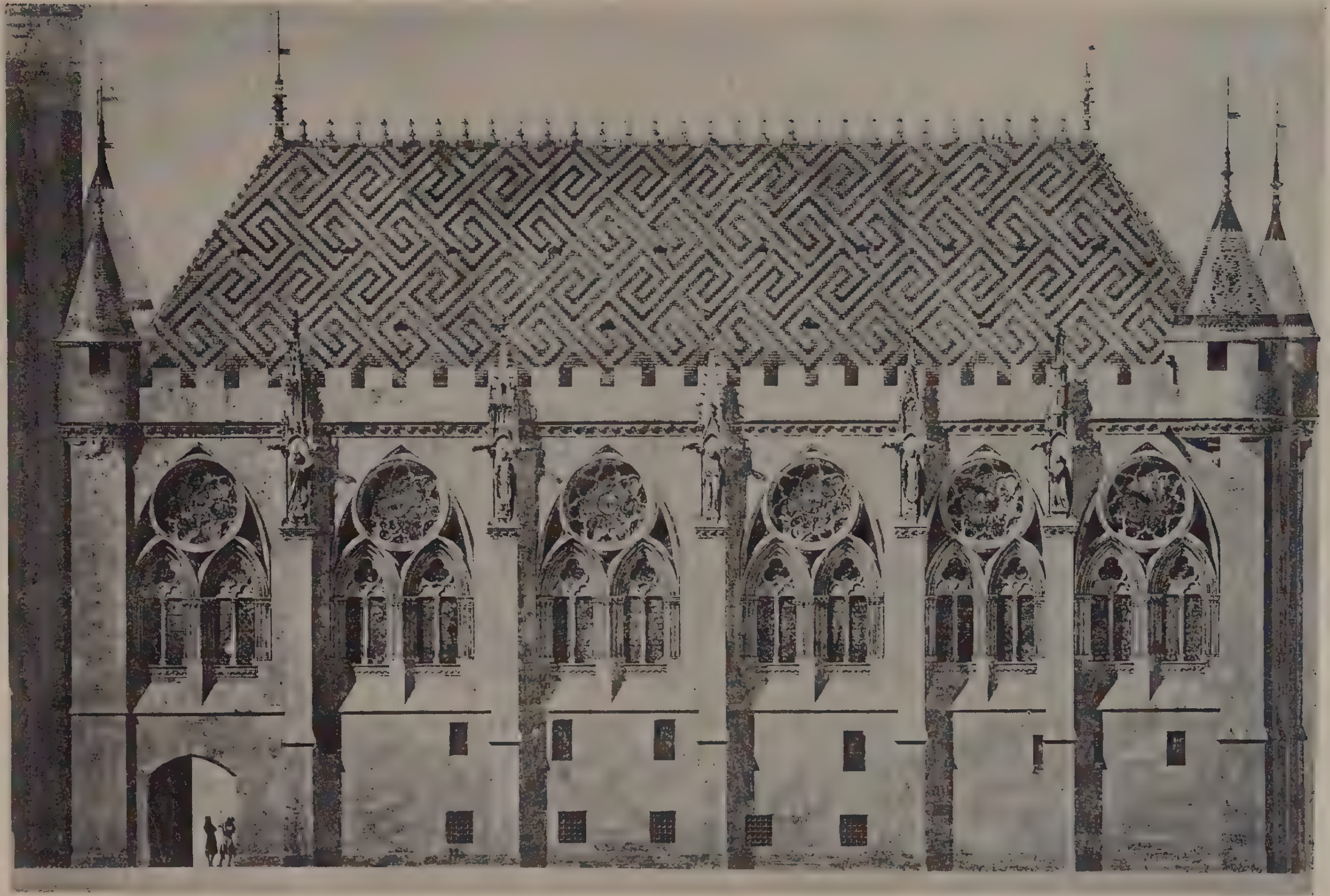


PLATE 227

SYNOD HALL IN SENS, FRANCE

This Synod Hall may justly be included among the finest pieces of thirteenth-century Gothic extant. A fair idea of the massive walls may be gained by observing the magnificent large rose and other windows that fill in the spaces between the buttresses. The topping out of the buttresses with statues and pinnacles, the turrets at the corners, the high, colored tile roof with its ornamental crestings, and the harmonious proportions are the other outstanding features of the design.

Emblematic of the Scriptures are the windows of the church, for they admit the light and warmth of the true Sun into the hearts of men. The circular rose window often seen in the West end of churches—San Pietro, Toscanella (Plate 174), Rheims Cathedral (Plate 89)—is the mystical rose of Mary and the infinitely perfect God.

The ceilings of the church are the symbols of the heavens; that of the nave the firmament, and that of the sanctuary the highest heaven. The stars, sun, moon, the cherubim, seraphim, thrones, dominions, principalities, archangels, men and animals, all created beings, praise the Lord of Hosts. These are quite appropriately depicted in church ceilings. The communion rail is symbolic of the Last Supper table of the Lord; the vine, corn and wheat, the chalice, and so on, are commonly used for its decoration.

PLATE 228

Candlestick

ST. FRANCIS COLLEGE CHAPEL,
ATHOL SPRINGS, N. Y.

(Executed by Rambusch.)

PLATE 229

Metal Light Reflector for Sanctuary

ST. AGNES' CHURCH, NEW YORK CITY

(Executed by Rambusch.)
(R. H. Almiroty, Architect.)

The pulpit is the place from which our Lord taught the people. The materials used in an ideal pulpit are of two kinds. A stone substructure stands for the Old Law; wood, which is a material higher in the order of creation, is used in the superstructure, and is symbolic of the New Testament. Delineations of the Sermon on the Mount, the four cardinal virtues, and the three theological virtues, make appropriate representations for the pulpit.

On the confessional the following symbols can be used with propriety: the key to loose and the key to bind, the Good Shepherd, St. John Nepomuk (the patron saint of the confessional), the prodigal son, Mary Magdalene, etc. (See Chapters VII and IX for descriptions of Baptisteries, Confessionals, Pulpits, Communion Rails, Roods, Etc.)

CHAPTER XII

LIGHTING, HEATING, AND ACOUSTICS

LIGHTING

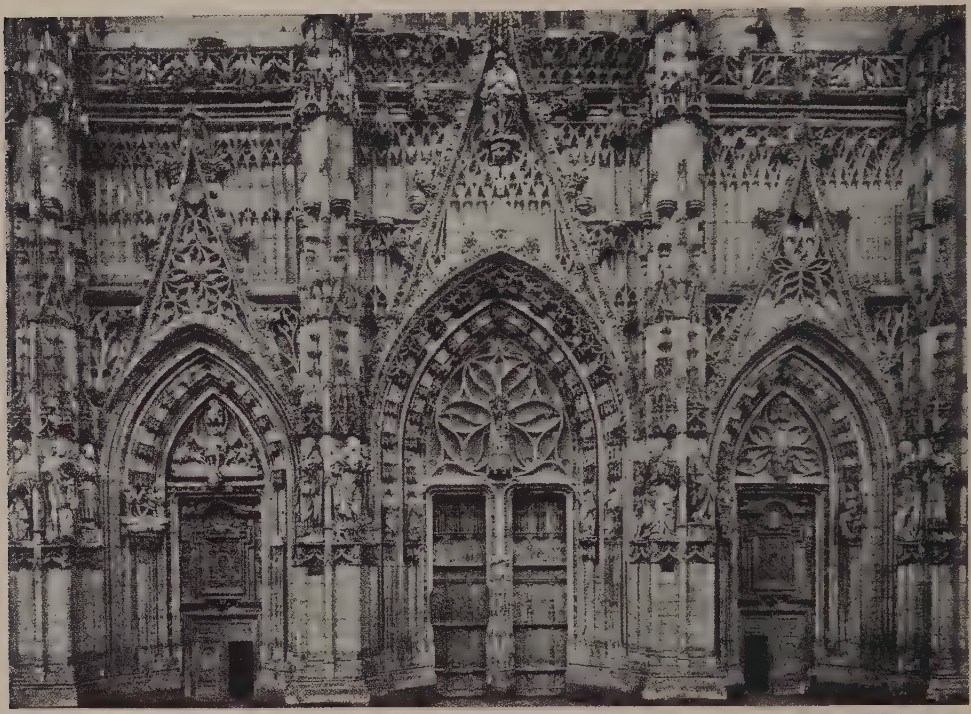
IN the search for atmosphere in the church, artificial lighting must be regarded with due attention. Its influences are subtle, and examples are numerous where church interiors of excellent design have been ruined by too much, insufficient or improperly proportioned lighting, or by poorly placed or bulky lighting fixtures, or by concealed illumination creating strong contrasts of light and shadow which totally ruin the architectural design.

The church should convey the atmosphere of spiritual stimulation to the end that, whether filled to overflowing or having but a few worshippers present, it will develop a sublime feeling of communion with the Omniscient, and the lighting has much to do with achieving this end.

The problem of lighting adequately the sanctuary—the Holy of Holies—so that the altar becomes the cynosure of all eyes, while at the same time allowing sufficient illumination for the nave, requires a great deal of thought. This condition really demands lighting systems separate and distinct.

Let us consider for the moment the lighting problem of ancient times, when the difficulty of focusing attention on the altar was negligible. Even before the dawn of Christianity it was customary in pagan temples, by means of light both natural and artificial, to direct attention to the *cella* or room of the god. In Egyptian temples those portions in the building anterior to the *cella* were dark, and became darker as the worshipper approached the *cella,* which was brilliantly lighted by a clerestory. What we know of the lighting of the Greek temples is only conjecture, for all vestiges of their roofs have been destroyed, and no authentic account of the latter has come down to us. It is the general opinion, however, that the statue of the god or goddess was in some manner lighted by day from above, perhaps by a clerestory or otherwise.

Turning to the Old Law, it is supposed that, in Solomon's Temple at Jerusalem, the *Debir* (or Holy of Holies) had no windows, and was constantly in darkness. No light passed to the *Debir* through the entrance from the *Hekal* (or holy place), for the opening was closed by means of a veil of byssus in violet, purple and scarlet embroidered with cherubim. It is quite true that in the *Debir* light was hardly needed, for, thanks to the veil, no one could look through the opening and, further-



The West Portals PLATE 230

ST. WULFRAM'S CHURCH, ABBEVILLE, FRANCE

Though founded in the fifteenth century, this church has the appearance of being very late in style, and the probabilities are that some of it was executed in the early years of the following century. It is Flamboyant Gothic, and thus contemporaneous with the English Perpendicular period. It is a very noble example, and the most diligent scrutiny will reveal little to criticize.

more, the *Debir* was entered but once a year, and then only by the high-priest.

The *Hekal* had windows on the North and South sides, but these functioned primarily as ventilators to allow the incense to escape; nevertheless, light in small quantities, even though borrowed from the chambers on each side, must have filtered through. Some authorities state

(Edward J. Weber, Architect.)
(F. B. Lieftuchter, Decorator.)

PLATE 231

Interior Decorations, Looking East

ST. JOSEPH'S CATHEDRAL, WHEELING, W. VA.

that in the *Debir,* in front of the Holy of Holies, numerous lamps burned both by night and by day.

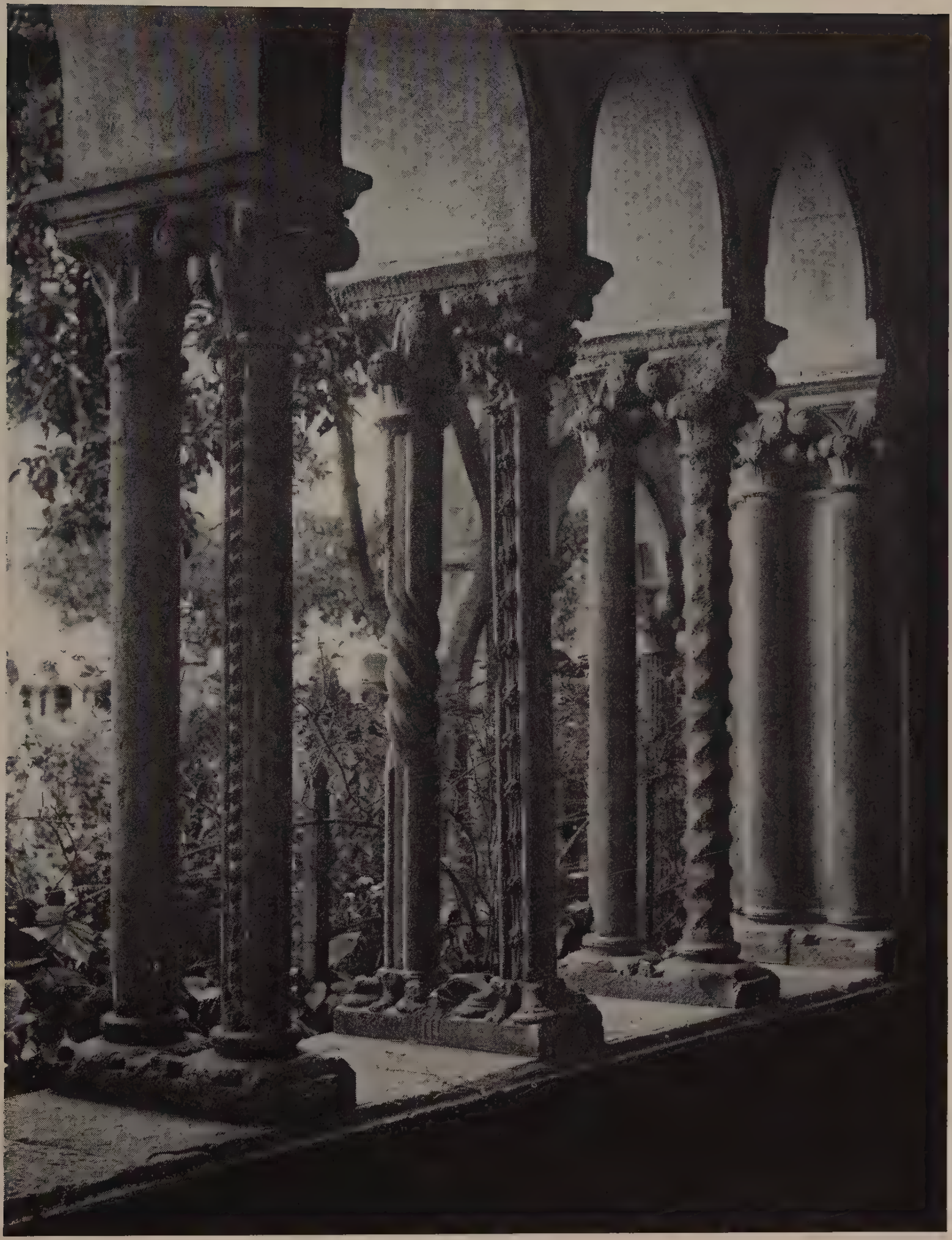
The Early Christian basilicas were well lighted during the day by clerestories, as were the Byzantine churches by windows in the tympani under the arches of the domes and by circlets of windows at the bases of the domes. The heavily vaulted Romanesque churches had sufficient light, though their windows were comparatively small. The Gothic churches gained in glass area over their Romanesque progenitors, but, because the glass was so richly painted, they did not gain over them greatly in the amount of daylight illumination.

The problem of focusing attention on the altar in olden days was simple in comparison with that of today. The faithful had no need of artificial lighting by which to read: the few who could read were mostly of the clergy, who were about the altar or in the choir or sanctuary near the candles. The rank and file of the people in the nave had, therefore, no difficulty in focusing their attention upon the altar, because, except on very rare occasions, lights were to be seen only on the altar or near the choir and sanctuary.

There were no great number of lighting fixtures hanging in the nave. Of electric, gas or oil light they had none, excepting in the last category the taper floating in oil. Candles were so expensive that they were reserved strictly for the altars, except when the few lighting fixtures in the place were supplied with them on great festivals. Furthermore, the houses of worship were not used at night. Today, it is customary to make the church function regularly at night for Benediction, Holy Hour, Lenten Services, Forty Hours' Devotion, Missions and so on. For the day services of olden times the candle lights on the altar were sufficient to make it the most brilliant spot in the church.

It is true that in monastic churches, where the monks recited the prayers for the night vigils, a certain amount of artificial light was necessary. In one Carthusian monastery the candles were so arranged that one served to light the books for three monks.

We read that "there was scarcely a church in ancient times which was not provided with a corona richer or plainer in design according to the wealth or dignity of the foundation" ("Glossary of Ecclesiastical



View of Cloister PLATE 232

CLOISTER OF FOSSANOVA, ITALY

The cloister of Fossanova furnishes a beautiful example of the Romanesque details to be found in so many ecclesiastical buildings of the Middle Ages, especially in the South of Europe. The slender, coupled columns, with their fluted, twisted and clustered shafts, lend to the vista of the cloister garth an irresistible charm and picturesqueness. The work was probably erected during the twelfth and thirteenth centuries.

Ornament and Costume," by A. Welby Pugin, p. 84). A corona in this sense means a crown of lights on which were used candles only, or of a combination of candles and lamps, the latter being supplied with oil containing a floating taper. These coronas were often triple in design—that is, composed of three horizontal rings graduated in size and connected together with handsome chains. The large crown or circlet was generally hung at the bottom, although occasionally the reverse system was used.

(Courtesy of "The American Architect.") PLATE 233

The Interior

CATHEDRAL OF PALMA, MAJORCA

This Cathedral is classed as Spanish Gothic. It is of an extremely simple, almost austere type of Gothic architecture, and no doubt is very early in date (perhaps thirteenth- or early fourteenth-century). As the columns are extraordinarily slender in proportion to their height, we are at first inclined to wonder whether they have sufficient stability. However, they have stood there fulfilling their function for about 600 years.

We read of coronas containing as many as forty-eight candles and sixteen lamps, although some contained as few as three candles. Symbolism was used to a great extent in the design of the coronas. When three lights were used, it signified the Blessed Trinity; seven implied the

Seven Gifts of the Holy Ghost, or the Seven Sacraments; if the corona held twelve candles on the ring with one in the center, it signified our Lord and the Twelve Apostles. The number of candles used on the corona depended upon the solemnity of the feast days. Coronas were occasionally hung in the parish churches before the great rood beam or screen, but most generally they were found in the choir.

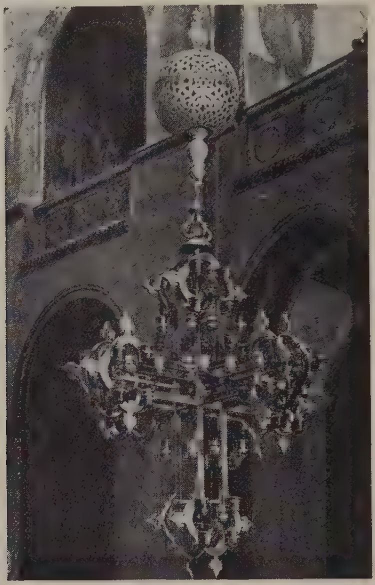


PLATE 234

The Great Central Chandelier

ST. MARK'S CATHEDRAL, VENICE, ITALY

In this handsome work of art, Venice possesses something unique in the way of a metal lighting fixture. It hangs in the center of the nave dome, and is designed like a sort of double cross, so made that it has the form of a cross from any point of view. Since it was necessary to arrange for lowering and raising the chandelier to replenish with oil and tapers its many little glass cups, a chain and balance were provided. The great pierced ball at the top gives the impression of stability, whether real or apparent. This fixture contains over one hundred lights, known as votive lights.

There is an account of two great wheels of iron that were hung in one of the large cathedrals, each containing one hundred candles which were lighted on the anniversary of the Purification of the Blessed Virgin. We read of one copper circlet about eighteen feet in diameter hanging in the choir of the Cathedral of Rheims, containing twelve lanterns and ninety-six candles. In all probability the coronas (excepting perhaps in monastic churches) were not used except on great ecclesiastical festivals. They were, no doubt, supported by counterbalances to permit their lowering for replenishment, and these weights were in all likelihood placed in the space between the top of the roof and the stone vault of the ceiling.

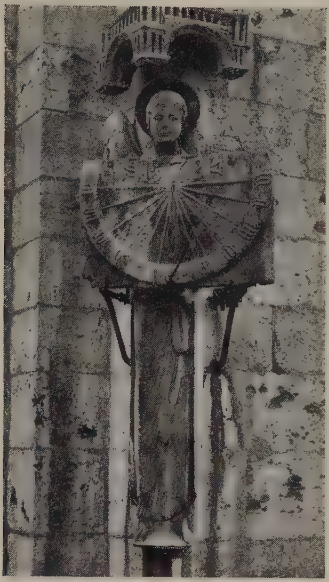


PLATE 235

Angel with Sun Dial

CATHEDRAL OF CHARTRES, FRANCE

On the South-West corner of the South tower on the West front of Chartres Cathedral is this angel and dial, beautifully chiselled in the twelfth-century manner. The dais, or canopy, is of the same period, but the metal dial is dated 1578. In the lower right-hand corner of the illustration of the West front of this cathedral (Plate 25) can be seen the position this dial occupies in the tower.

Thus, it follows that, since candles were used on the altars only (except perhaps on extraordinary feast days), the conflict between the lighting of the sanctuary and the nave did not exist. Today as in olden times the altar must be forced to stand out in unchallenged splendor.

With regard to the placing of lighting fixtures in the church today, it is best to suspend them in the nave from chains, rods or cables fixed in the ceiling, or from brackets projecting from the walls. They should be hung quite close to the nave walls, and comparatively low, and one should be placed in the center of each bay. Whenever the fixture is hung low and in the center of the bay or arch, there will be ample illumination for the aisles. This system applies to a church with nave and two side aisles, as well as to a church without aisles. In the event the church to be lighted is cruciform in plan, the fixtures look seemly if carried across the transept on the same line and at the same height with the nave fixtures, thus promoting the lines of the lights in centripetal formation towards the altar. Naturally there will occasionally be churches that are exceptions to the above-mentioned general rules, and one of these is the very small chapel short in proportion. In such a

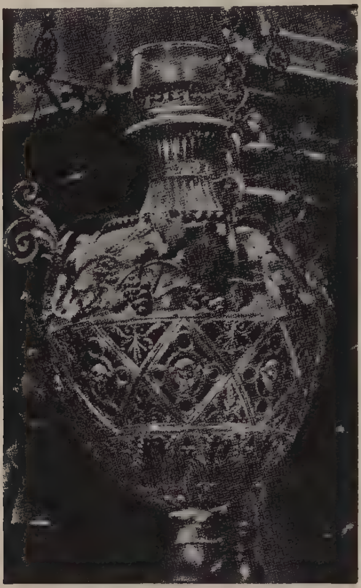


PLATE 236

Sanctuary Lamp

ST. MARK'S CATHEDRAL, VENICE, ITALY

St. Mark's is a veritable treasure-house. Its works of art are legion, and among them is this exquisite sanctuary lamp made of pierced metal and executed in the Byzantine style. The glass which contains the oil and wax taper is a tiny thing compared to the vase-shaped object that holds it. Beautiful scrolls are affixed to the sides of the vase at three points, to which the well-designed chains are attached. A vine decoration runs around the vase between the scrolls, and, as can be readily seen, its leaves and grape clusters are exquisitely modelled.

house of worship, the lights can be placed on a line in the center of the ceiling, provided they are hung high.

A lighting fixture, to be a success, must perforce be something that not only gives light effectively, but also fits in well with the scheme of the architecture and decorations of the building. Since the lighting power of the fixtures is mainly intended for reading, the bulk of the light must be thrown downwards. Comparatively little need be forced upwards for the lighting of the vaults and ceilings, which should be lost in mystery and shadow at all times. Sufficient light for these will be reflected from the walls and floors.

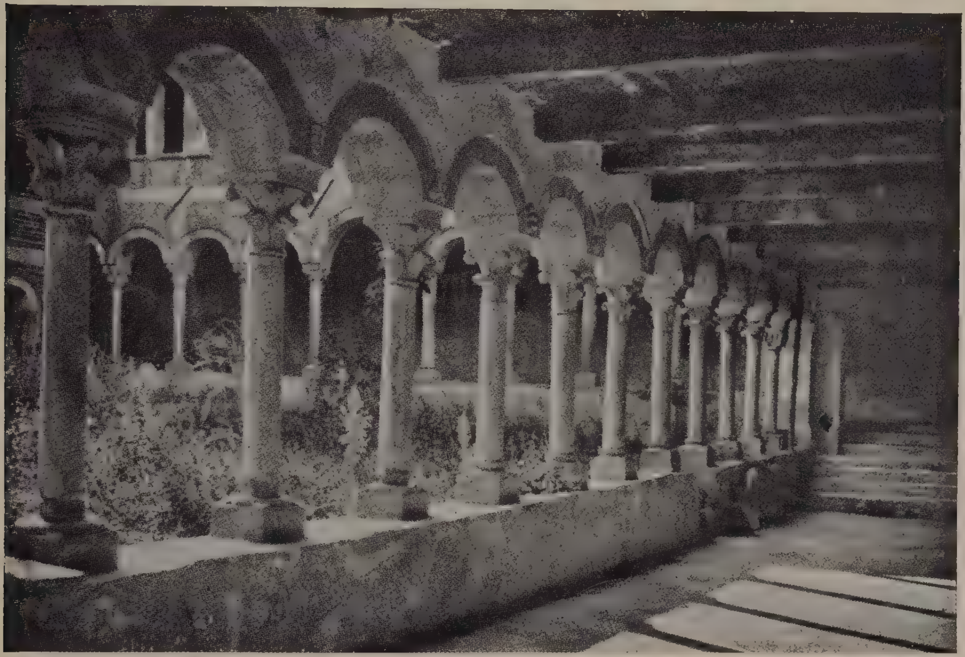


PLATE 237

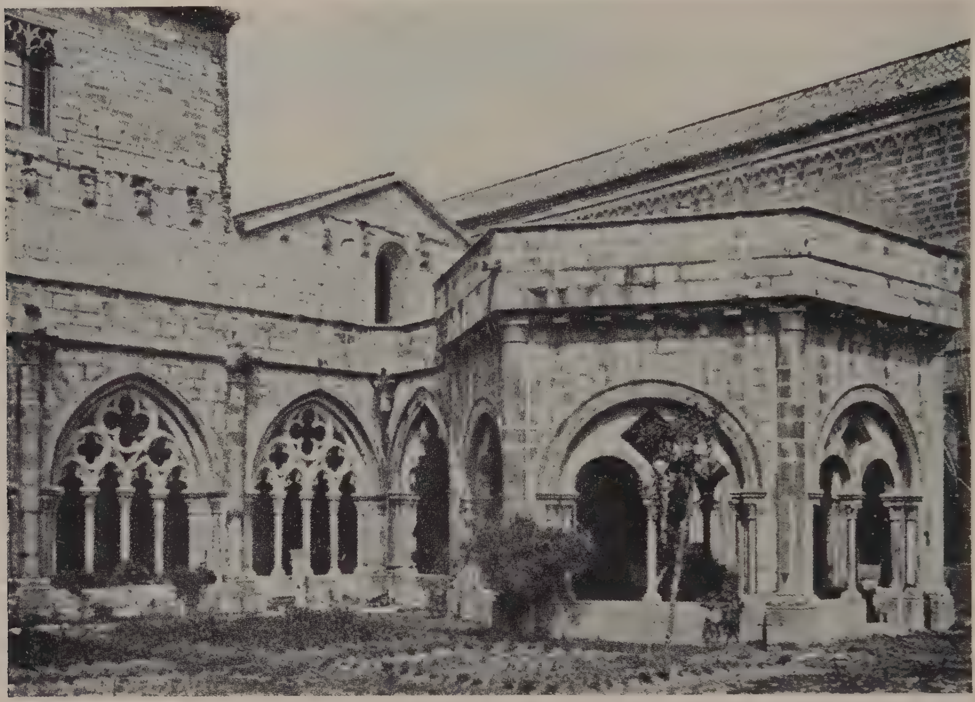
The Cloister

CHURCH OF ST. NICHOLAS PIONA, LAKE COMO, ITALY

This cloister is in the Romanesque style, although built as late as the thirteenth century. Gothic architecture was tardy in reaching some parts of Europe, and we have here an evidence of its tardy arrival in Italy. As may be seen, a stone-vaulted ceiling is not used, but we find instead stout wooden beams. No buttresses are to be found, as there are no outward vault thrusts to contend with.

The church is a structure set aside, as far as the laity is concerned, for communing with the Almighty, for seeing, and for hearing. The lighting, therefore, should be just sufficient for the reading of a prayer-book and no more, and this result should be achieved without any glare or with as little as possible.

By indirect lighting is understood a system whereby a building is lighted by reflection—*i.e.,* the light is thrown against the wall or ceiling, which in turn reflects the light to the surroundings. In this system lighting fixtures to carry the electric light bulbs are not used, but instead the bulbs are placed behind projecting cornices, column caps, ceiling ribs, and so on. That, as already stated, indirect lighting is inadvisable, is proved by the fact that it spoils all the religious character and feeling in the building by lighting up the vaults and ceilings, which


The Lavatory PLATE 240

CLOISTER OF THE CISTERCIAN MONASTERY, POBLET, SPAIN

The Monastery of Poblet, as an example of the great houses of the Order, is very complete. It was founded in the year 1149. The lavatory shown in this illustration is hexagonal in plan, and it was placed freestanding in the cloister garth, except for a short passageway which connected it with the cloister wall. The passage to the lavatory is, for the sake of convenience, placed opposite the door to the refectory. The lavatory itself is in the Romanesque manner, while the cloister walls have pointed or Gothic openings filled with exquisite tracery.

should by night as well as by day be lost in semi-obscurity, as previously expressed. By excessive illumination of the ceiling, this system has the disadvantage of attracting the attention thither instead of towards the altar. The light should be down near the worshipers to enable them to read with facility. Again, if there are any figure paintings or decorations on the ceiling, the bright lights tend to kill the colors. The exceedingly brilliant contrast of light and shadow in such a system of lighting gives to the architecture a restless appearance, and makes it look weakened in its supports; thereby the æsthetic appeal of the architecture, which must be kept intact, is destroyed.

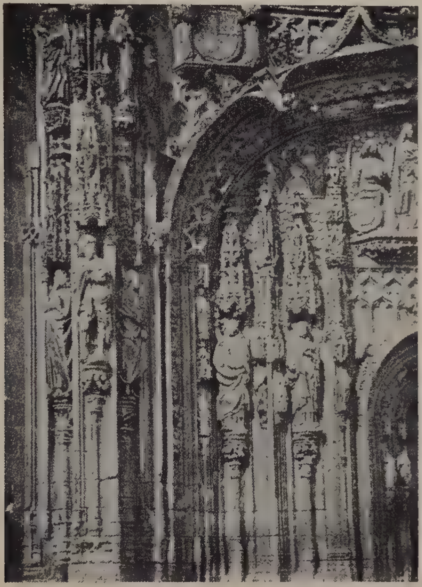


PLATE 239

Detail at Left of Doorway of West Front

DOMINICAN CHURCH OF ST. PAUL, VALLADOLID, SPAIN

The detail of the door of the Church of St. Paul is a demonstration of the unrestricted extremes to which Spanish architects were wont to go in some of their Late Gothic work. However, when used in connection with plain walls for foils, no fault can be found as long as the exuberant detail itself is well executed and in good taste, as it undoubtedly is in this example. There is no denying that the architects and sculptors of this fine work knew their *métier,* for everything is most beautifully managed. The small statues of Saints, in juxtaposition with the large ones, promote the effect of grandeur in the large figures and give scale to the latter. No Renaissance leanings are to be observed in the work surrounding this doorway.

Has the reader ever tried to visualize a glorious cathedral, such as Chartres or Seville, lighted up with such a system? No one, I feel sure, would condone such a sacrilege in an ancient masterpiece. But, if it be agreed that it is wrong, bizarre and theatrical to use a lighting system of this sort for such glorious old shrines, why use them in our own new churches in America today, where a great many are at least built in the selfsame ancient architectural style?

(Edward J. Weber, Architect.) PLATE 240

View from Craig Street

ST. PAUL'S SYNOD HALL AND CHANCERY BUILDING,
PITTSBURGH, PA.

There is a system of indirect lighting wherein the bulbs are placed in concealed positions in exposed fixtures. This system is advisable for use in lighting the sanctuary and the altars, for, as stated previously, the sanctuary must be more brilliantly lighted than the remainder of the edifice. This can be accomplished by grouping several trough lights and placing them back of an ornamental flat plaque bracketed out several inches from the side walls of the sanctuary on the responds of the sanctuary arch. To place rows of reflectors back of the sanctuary arch does not work out satisfactorily, for they make the side walls and the ceiling of the sanctuary too bright for the altar.

Lighting fixtures can be patterned upon some of the beautiful lamps that hang in notable shrines, such as the Church of the Holy Sepulchre, Jerusalem, St. Mark's, Venice, and others, or fixtures inspired by the ancient coronas make ideal fabrications; however, the use of imitation candles in the design must be scrupulously avoided, and frosted bulbs set in ornamental receptacles should be used in their stead. On the coronas, lamps enclosing high-powered bulbs can be installed in place of the ancient lamps, which contained tapers floating in oil. If a few

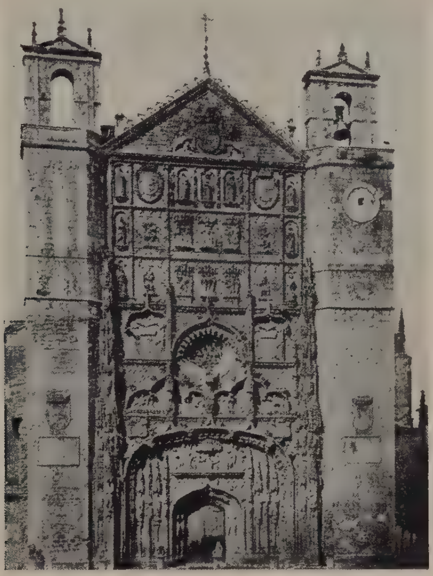


PLATE 241

The West Front

DOMINICAN CHURCH OF ST. PAUL, VALLADOLID, SPAIN

The front of this church, dating from about 1486–1492, gives some notion of the architectural effect that the Spanish missionaries tried to emulate in America. It must be admitted that they were successful to no small degree. The entire front between the towers, similar to some Spanish Colonial churches in America, is a mass of carving, but the rest, including the towers, is extremely plain. All is well-proportioned and effective. The façade is Late Gothic, save the upper half of the building where outcroppings of the Renaissance can be detected.

candles on the coronas or fixtures are desired for decorative purposes, they can be real wax candles, which remain constantly in place but which are lighted on special feast days only. It is far better to err on the side of having the lighting fixtures too small than to be at fault in the opposite direction, and it is better to have the fixtures hanging too near the wall than too near the center line of the church.

Pulpit lighting is required, but it should be concealed from the congregation and arranged as a soft light shining directly on the speaker. Picture-lighting reflectors should not be placed over the representations pertaining to the Stations of the Cross. This is especially true if they are sculptured representations, for the reflectors light brightly the upper part and dimly the lower part, causing an effect which is unhappy to a marked degree. If the lighting fixtures are hung in the nave in the positions as suggested above in this chapter, there will be ample light on the stations without auxiliaries being necessary.

If it is desired to light a statue in the church, it should never be done from below, but from above the head and a little to one side if possible. When a photographer makes your portrait, he does not direct the light to shine on the lower part of the chin and nose, leaving the top of the head in shadow. It is well to remember that the light of the heavens is from above, and to emulate this position should always be our endeavor. The nimbus of a statue should not contain artificial light.

Electric lights should be kept off the altar and reredos. It is contrary to the rubrics to place electric lights in the throne of exposition. The custom of illuminating with electric lights sculptured reliefs on the front of the altar under the *mensa* should also be discontinued. From the direct glare of glowing light filaments all worshippers should be delivered at all times and places in these days of improved lighting systems.

HEATING

The selection and design of the heating plant for the parish buildings should receive most serious consideration. It is important that this phase of construction be studied from all angles, and that the system and equipment entering into its assembly be selected with a view to merit, safety, and economy of operation. Where conditions are favorable, as many buildings as possible in the parish group should be serviced from a central plant. It is less costly to construct and maintain one plant than to have four or five boilers scattered around the neighborhood, and besides, the resultant coal and ash nuisances are concentrated at one point.

PLATE 242

View from the South-West showing the Little Cloister, the Crossing Tower, the South Side of the Church, and the South Wing of the Transept

THE CERTOSA OF PAVIA, ITALY

The Certosa of Pavia is the grandest of the foundations of Carthusian Monks, and is next in size to the Grande Chartreuse at Grenoble, France, which is the largest in the world. Most of the work dates from 1396–1481. Some parts of the exterior are built in the Lombard Romanesque manner, but the West front of the church is Renaissance of the year 1473, and the tower over the crossing is in the same style but of the year 1491. The tower is the many-storied type like that of Chiaravalle Church nearby. The plan of the church is a Latin cross, and on three of the extremities of the arms are apses, like the triple apses in some German churches.

Simplicity of design should be striven for, and the number of mechanical devices should be reduced to the minimum in individual buildings. It is preferable to provide suitable boiler rooms, thereby enabling the installation of gravity systems, rather than complicating matters by having only limited spaces, the levels and characteristics of which are altogether unsuited for the accommodation of the heating plant, and thus necessitating the employment of complicated mechanical equipment. The heating plant should be as nearly centrally located as conditions will permit, and this applies to individual structures as well as to groups. This plan is not always practicable, but the thought should be kept in mind, and applied if at all feasible.

(Courtesy of "Architecture.") PLATE 243

Lady Chapel

ST. PATRICK'S CATHEDRAL, NEW YORK CITY

(Chas. T. Mathews, Architect.)

Progress is being made in the heating field as well as in others. Efficiencies are on the upward trend, and manipulation and control are being bettered continually. These features all reflect themselves in the fuel consumption, and where is there a parish which would not welcome an appreciable reduction in the yearly fuel bills?

One of the most recent innovations in the heating field is the oil burner, and some of these newly installed plants have been working out most satisfactorily.

Competent heating and ventilating engineers are authority for the statement that poor and wasteful heating plants far outnumber the good ones. It has been only in recent years that any serious thought has been given to this problem, and where heretofore a so-called plain system sufficed, we are discovering that such systems were not always a model of economy. Many such plants have been tolerated for no other reason than that we knew no better. The original heating plant consisted of a steam kettle from which a pipe was led to a condensing coil which we named a radiator, and in some of our modern buildings we accept a contrivance which is not very much more advanced. Your architect should be in close touch with competent heating and ventilating engineers who are practising that profession, and who are familiar with the latest known improvements and attainable advantages.

ACOUSTICS

Formerly, it was considered almost hopeless to try to determine in advance whether or not a contemplated building would be, when completed, acoustically satisfactory, but progress has been made within the last fifteen or twenty years to such an extent that acoustics can now be fairly well taken care of beforehand. The installing of wires and sounding boards was at a no very distant date the sole refuge of the pastor who had faulty acoustics in his church, but today we are compelled to admit that, while the second method will still help to some extent, the first practice improved acoustics only in the imagination. Churches are being built today very substantially, and fire, rat and vermin proof, and we are getting away from sound-absorbing building materials, all of which makes our acoustic problem much more difficult to solve.

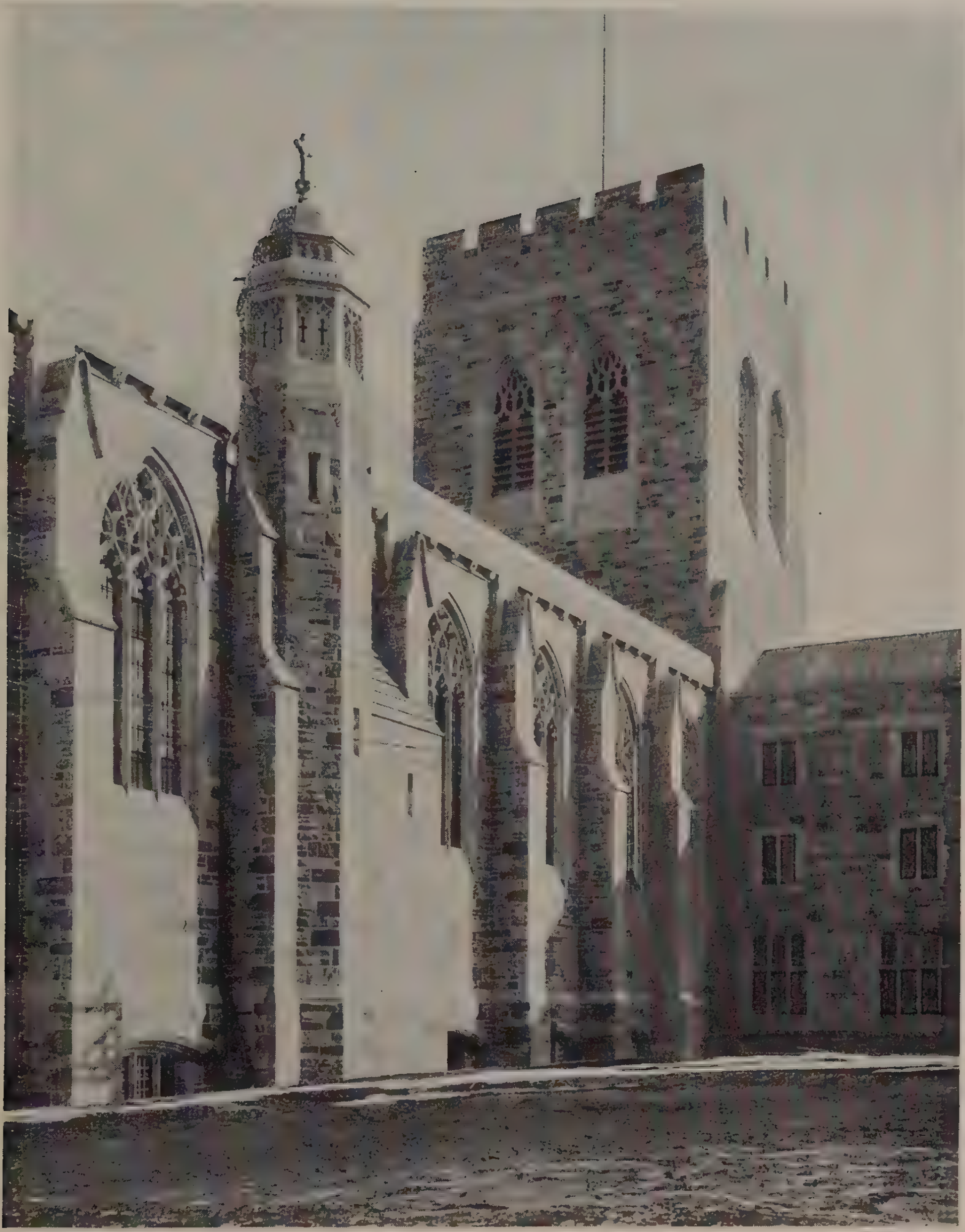
Many a congregation graduates from the old church—a small frame one, built of soft materials with soft plastered walls—to a large church of brick and concrete covered throughout the interior with cement plaster. Hard tile floors take the place of wooden ones, often covered with carpet. If the proper precautions are not taken, it is a foregone conclusion that the new church will be acoustically not as satisfactory as the old.

In a room having perfect acoustics a sound is heard in all parts of the room without echoes or exaggerations, and the sound then speedily succumbs so as to make way for other new sounds that are to follow it. The shape of the room, the size of the room, and the amount of sound-absorbing material in the room are the factors that determine its acoustics, but the last feature is the most important of the three.

(H. A. Sullwold, Architect.) PLATE 244

OUR LADY OF VICTORY CHAPEL, COLLEGE OF ST. CATHERINE,
ST. PAUL, MINN.

Since nearly every Catholic church is in the form of a long nave with or without a transept, we need in general have little worry about the shapes of the plan, as acoustic difficulties are encountered chiefly with curved auditoriums. When a domed ceiling is used over a crossing, curved surfaces are encountered and these require attention. Ceiling shapes like those found in open timber roofs with trusses exposed generally give no reverberation, and the same can be said of a flat ceiling or a vaulted one shaped like a half barrel. Curved ceilings with the exception of domes are less apt to inaugurate troublesome echoes than curved walls. From the standpoint of acoustics, one source of great as-



(Wilfred E. Anthony, Architect.) PLATE 245

Refectory Wing

DOMINICAN COLLEGE OF ST. THOMAS AQUINAS, CHICAGO, ILL.

sistance in our churches is the fact that they are generally more than two-thirds filled with people for most of the various services. Acousticians, when they calculate the amount of sound-absorbing material required for a given building, figure the building as containing an audience of one-third capacity, but we Catholics can figure fairly confidently on a two-thirds capacity. Any priest knows that it is easier to talk in a church when it is filled or nearly filled with people.

By installing sufficient sound-absorbing materials, faulty acoustics can in most cases be corrected. Coffered barrel vaults can have their panels filled with sound-absorbing hair felt, covered with a cloth membrane placed one inch in front of the felt [–] to allow an air space. Except in spaces like small coffers and panels of ceilings, it is inadvisable to use felt and membrane, and this is especially true on walls of great expanse and on curved surfaces, such as are found in domes and vaulted ceilings. The cloth membrane bags and sags, and looks very ugly. Decorators complain that they cannot paint upon it, and it is only too true that money spent for expensive murals and decorations on this material is thrown away. In such places it is far better to use some of the excellent porous acoustic plaster which is now on the market.

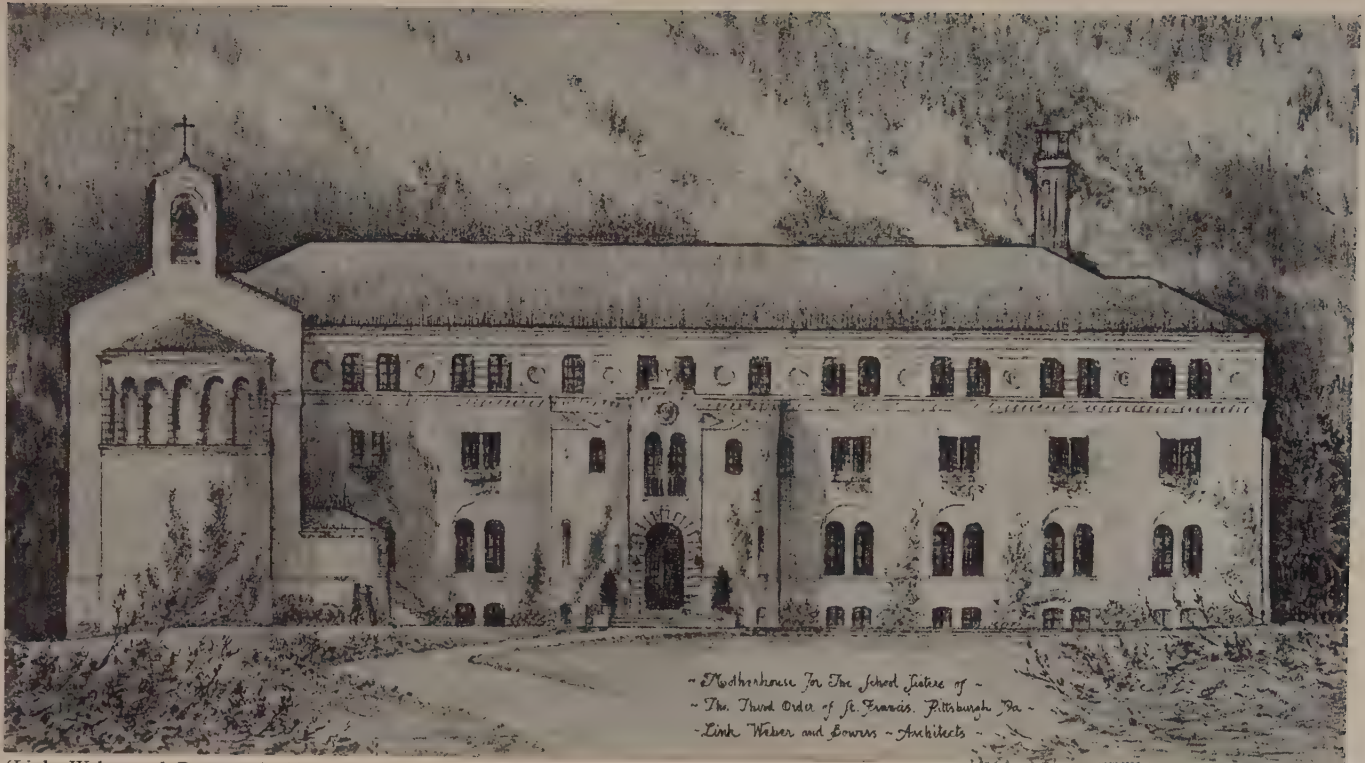
For Gothic, masonry-vaulted churches, porous absorbent acoustic tiles are used, and even piers and walls can be faced with these tiles, which aid in giving to the edifice the effect of an all-stone church. Barrel vaults and domes of the Byzantine and Romanesque types of churches are also built with these acoustic tiles.

The arches and pillars and piers of aisled churches, whether or not the latter contain seats, do much to secure good acoustics.

If openings or recesses are placed in the walls, and covered with grilles backed up by sound-absorbing felt, echoes can be reduced. Beams and arches projecting below the ceiling are a material aid toward securing good acoustics. If the church fronts on a very noisy street, it might be advisable (to aid in preventing the noises from penetrating the building) to eliminate the front doors of the narthex, and have entrances only at the end or ends of the narthex. Another method is to make the narthex quiet by the use of plenty of sound-absorbing materials, and by keeping the central narthex door closed as much as possible.

If the church is very large, the introduction of the modern amplifiers in the pulpit can accomplish a great deal towards carrying the preacher's voice to the far corners of the church. Sound rises. If you are on top of a mountain, it is not difficult for you to hear the bleat in the meadow below, but, shout as you may, no one in the valley will hear you. Thus, it is readily seen why sounding boards in very large or domed churches are found necessary over pulpits.

Tapestries hung on the walls, draperies on the windows, flags hung like trophies as in some well-known European chapels, upholstered seats and kneelers in the pews and similar furnishings (while perhaps not all appropriate for use in Catholic churches) might well be mentioned as aids towards solving acoustical troubles.


~ Motherhouse For The School Sisters of ~
~ The Third Order of St. Francis. Pittsburgh Pa ~
~ Link Weber and Bowers ~ Architects ~

(Link, Weber and Bowers, Architects.)

PLATE 246

MOTHERHOUSE FOR THE SCHOOL SISTERS OF THE THIRD ORDER OF ST. FRANCIS, PITTSBURGH, PA.

CHAPTER XIII

RECTORIES, CONVENTS AND SCHOOLS

IN the third chapter of this work, entitled "The Grouping of Parish Buildings," suggestions were given for the selection of the site for a parochial group, and advice was tendered regarding the arrangement of the grounds surrounding the various buildings comprising it. We will now take up the subject of the planning and equipment of the rectory and parochial convent and school, which, together with the church, go to make up the average parochial layout. The discussion of the rectory will be the first to command our attention.

RECTORIES

Rectories might be divided into three types: first, the type containing almost the minimum requirements, for a parish the pastor of which is without an assistant priest; second, the type containing accommodations for two or three priests; and third, that for exceptionally large parishes or for cathedrals.

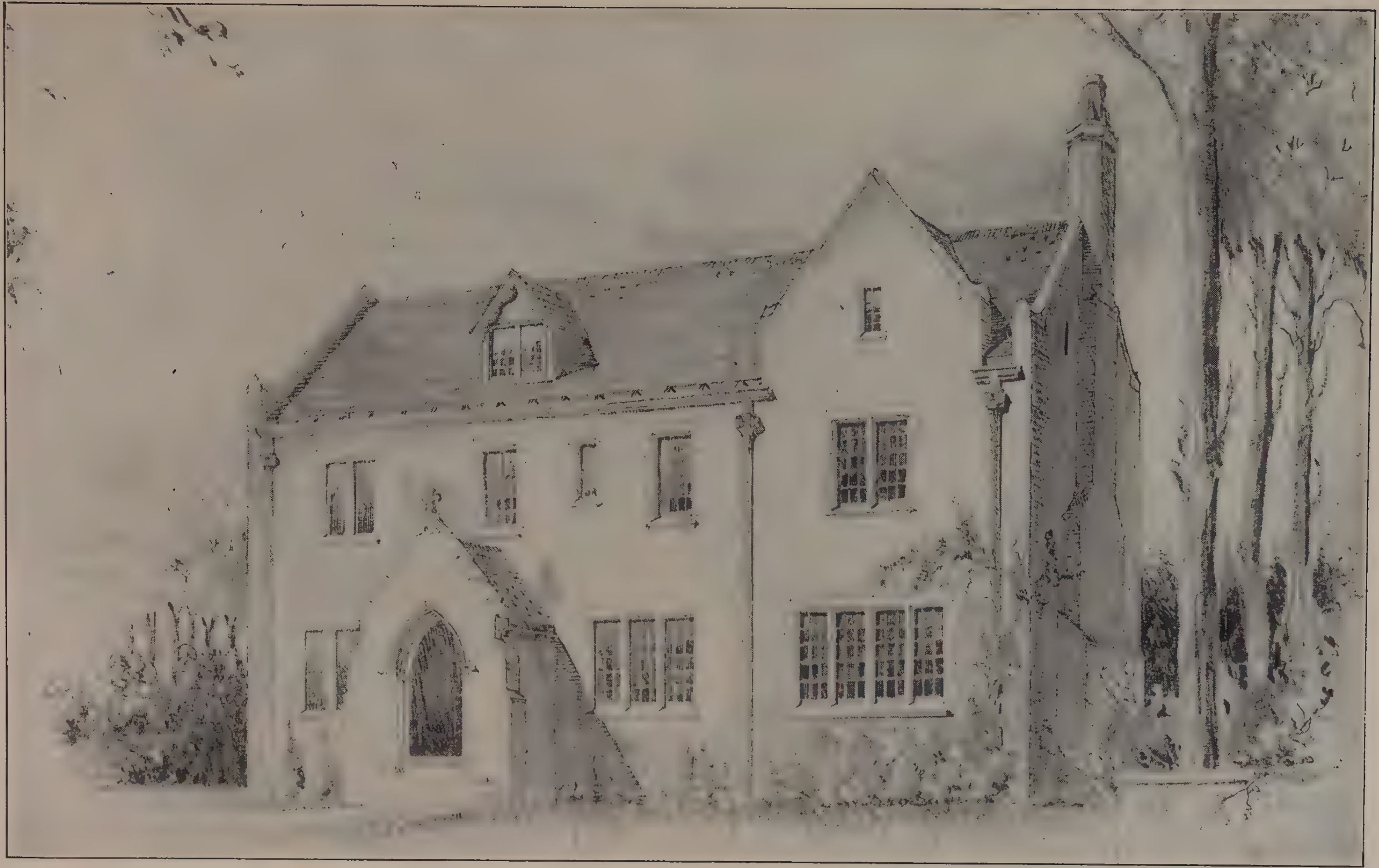
With the first type it is practically always a question of economy in the strictest sense of the word. On the first floor of such a rectory ought to be found a library or study for the pastor, a staircase hall, an office, a dining room and a kitchen, with the necessary appurtenances thereto, such as the front porch or stoop, the kitchen porch, the pantry, and so forth.

In such a rectory, the second floor should contain a bed-room for the pastor, a guest's room, a housekeeper's room, and two bathrooms. Variations of these arrangements can be made. The library is sometimes preferred on the second floor, in which case an extra office or waiting room is available downstairs, and the housekeeper's room can then be moved to the third floor or attic. In the basement, which for æsthetic reasons had better be kept well in the ground, should be found a laundry, furnace, cellar, storage room, etc.

It is obvious that strictly fireproof construction for this particular kind of rectory can scarcely be considered, as the expense incurred might be prohibitive. However, hollow tile stuccoed or brick would not be out of the question. Brick veneer, although a sort of false construction, is sometimes used. Perhaps we are apt to consider clapboards or shingles for the outside a little too lacking in fireproof qualities and as requiring too much expenditure for painting in the future. But, after all, the material to be used on the exterior should be governed by that which is used or will be used on the church or other parish buildings. The choice of the roof covering, too, should be regulated by the advice given above. And the style of architecture as mentioned in previous articles should be in harmony with the remaining parish buildings—that is, provided they are not too hopelessly bad, or that the new rectory will not be spoiled thereby. If the materials and style of the old buildings are of a type inadvisable to follow, it is best to disregard entirely their architecture in the new work.

Regarding the ordinary requirements of rectories of the second type mentioned above, the illustration of the exterior view of the new rectory for SS. Peter and Paul's Parish, Pittsburgh (Plate 247), may be of interest. This rectory has on the ground floor a committee room and two offices, a front stairs, a large library, and a refectory. The pantry, cold room, kitchen, housekeeper's sitting room, and servants' back stairs, are also to be found in this story towards the rear. Large separate verandas are provided for the clergy and for the housekeeper and her help. Two toilet rooms are also located on this floor.

In the second story, over the refectory, are a sitting room, bed-room and a private bath for the pastor. For the assistant priests there are located in the front of the building two suites of rooms, each containing a sitting room and a bed-room. One bath placed midway between these two suites serves for both. Two guest bed-rooms with a bath between them are provided on the side of the building opposite the pastor's suite. The front or clergy stairs communicates with the third



(Edward J. Weber, Architect.) PLATE 247

RECTORY FOR SS. PETER AND PAUL CHURCH, PITTSBURGH, PA.

floor or attic space, where there are two storage rooms together with a large room which in case of necessity can be used as a dormitory.

In the back portion of the second floor, over the kitchen, are to be found (cut off entirely save by one door from the rest of the story) quarters for the housekeeper and help, consisting of two rooms with a bath between them. The back stairs also rises to the attic floor. There are closets in all bed-rooms on the second floor, and a large linen closet and a slop-sink closet completes this story.

The exterior of the building is built of variegated tapestry brick, laid up with wide mortar joints, while Indiana Limestone trimmings will be found around the doorways, porches, and windows. In the case of this particular rectory, it was deemed inadvisable to follow the materials and style of the existing church architecture.

The third type, the exceptionally large rectory, is in a certain measure simply an enlarged edition of the type just described, although it may of course be built in a more expensive manner, and may have on occasion a small oratory added to it.

PAROCHIAL CONVENTS

The size of convents for nuns who teach at parochial schools is naturally governed by the number of nuns who are to be accommodated. A parish having a school containing eight classrooms should have a convent containing room for about twelve Sisters, which means that there are to be twelve cells. The nuns should not be placed in dormitories, or in cells containing more than one bed.

The convent illustrated herewith by a plan and an exterior view has been erected for St. Scholastica's Parish, Aspinwall, Pa. (Plates 248, 249), for a congregation having an eight-room schoolhouse. It is composed, on the ground floor, of a reception room, music room, refectory, kitchen, pantry, two staircases, and a chapel—the last-mentioned being sunk down four or five steps below the level of the rest of the floor to secure for it more dignified proportions.

On the second floor will be found the community room, five cells and a toilet or general wash-room containing two baths. The third floor placed in a high-roofed attic allows space for six (6) more cells and another toilet or wash-room. The cell rooms in this particular type of convent are 8½ feet by 13, and each contains a closet and a built-in chiffonier. In the basement are the laundry, drying room, furnace room, coal room, vegetable cellar, etc. The chapel is built, on the inside, of red tapestry brick, and it has an open timber roof and a quarry tile floor. The altar is of stone. This convent is designed with large general wash-rooms, and it is devoid of wash-stands supplied with hot and cold running water in the cells. The latter arrangement is a needless extravagance in plumbing, involving not only a heavy initial expense but also an outlay for upkeep, the importance of which should not be overlooked.

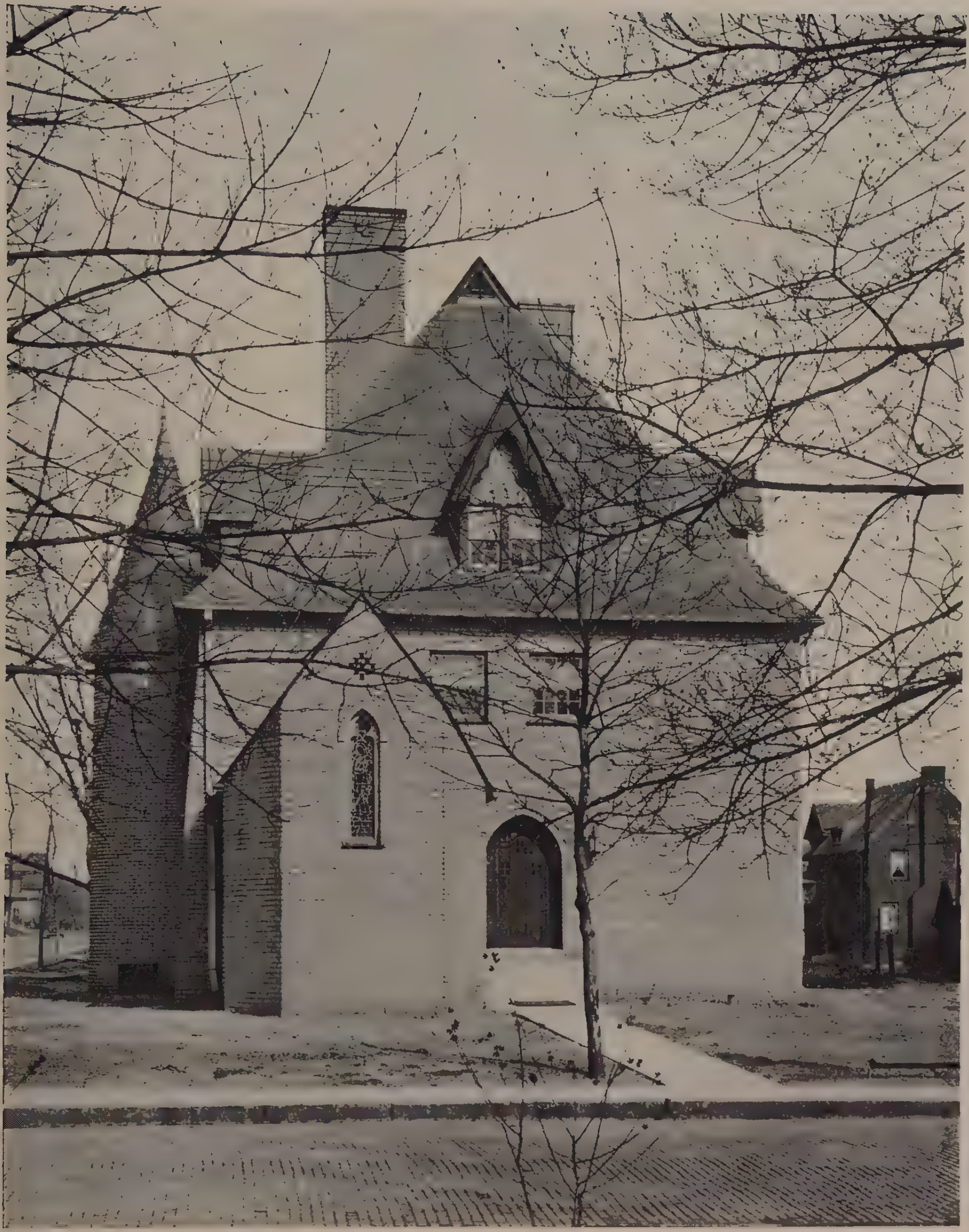
The principles for arranging larger parochial convents are pretty much the same as above noted, and the 8½ x 13 foot cell can be maintained. Regarding the materials and style to be used, the remarks in that regard under the heading of rectories are applicable.

SCHOOLS

The advice already given regarding the character of the exterior of the rectory and convent is also applicable to the school building, which should harmonize with other buildings of the group, unless the latter happen to be entirely out of keeping with the canons of good taste and design.

The Construction.—The building should have a construction as durable as possible, but this does not signify that it must be expensive or luxurious. It should be strictly fireproof throughout, if it is over two stories high, and it is well to have it so even when only a two-story building is erected. Today the extra expenditure to procure the additional safeguard of fireproof construction for the lives of the pupils and teachers is not great, and, in addition, the unsightly cracks in plastering, so common in non-fireproof work, are entirely avoided, and the opening up of the joints in woodwork is ameliorated.

Basement.—The walls of the cellar or basement should be made

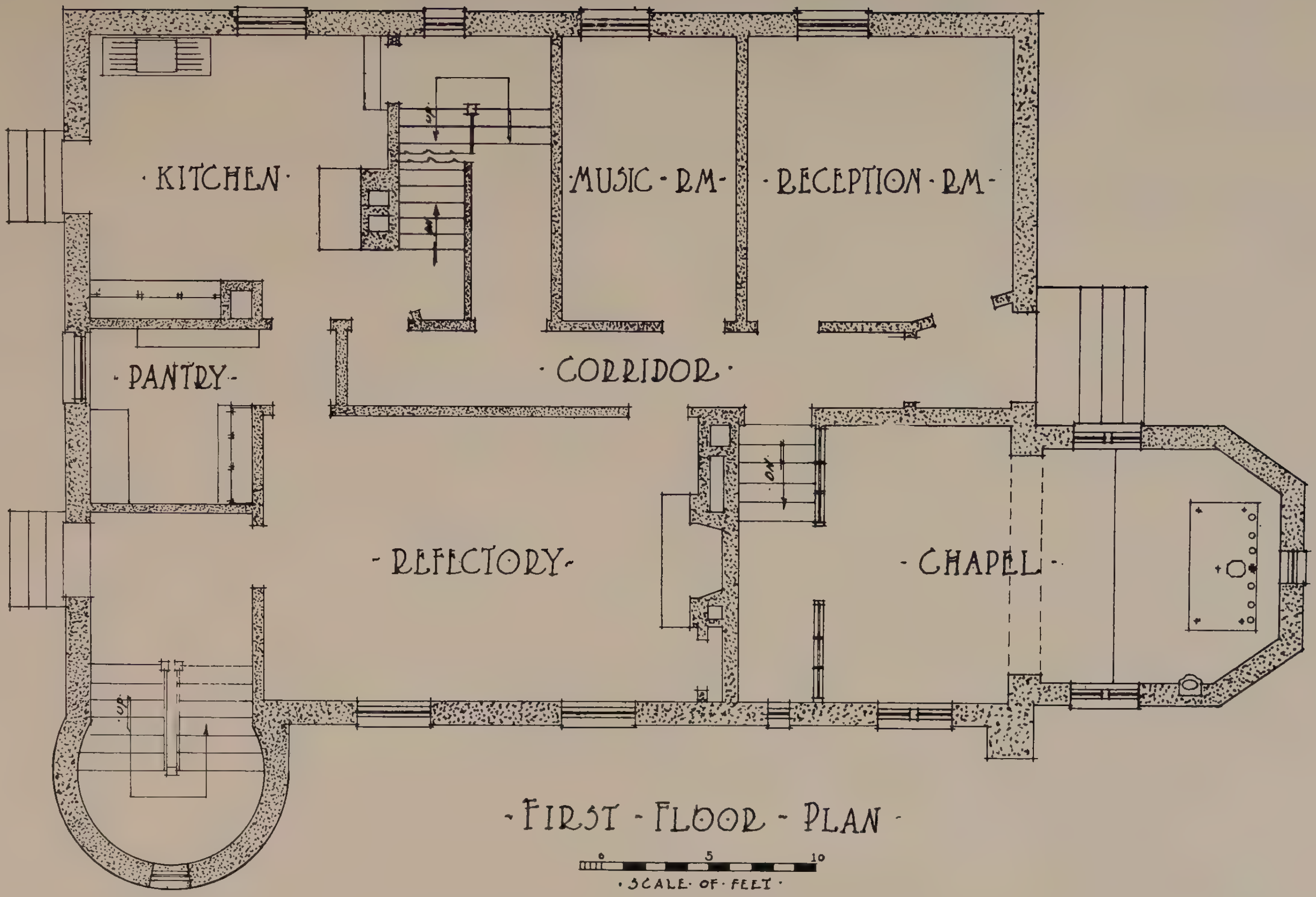


(Edward J. Weber, Architect.) PLATE 248

South View

ST. SCHOLASTICA'S CONVENT, ASPINWALL, PA.

PLATE 249



(Edward J. Weber, Architect.)

ST. SCHOLASTICA'S CONVENT, ASPINWALL, PA.

waterproof. The basement is often arranged to contain, besides the heating equipment (and fan room if there is a mechanical ventilating system), an assembly room for bazaars or various other church entertainments. Play-rooms, a gymnasium and so on are also occasionally found there. When the basement is to be used for classrooms (which should never be done if the floor is built more than 2½ feet below the ground), the height of the ceiling, the size of the windows, the interior finish and specifications for the classrooms in general must be the same as for the upper stories.

Boiler Room.—A boiler room with at least a 12-foot ceiling should be provided. If the school is a very large one, it is well to have the boiler room outside the building, but in small schools this is generally impractical. No matter what may be the construction of the building, the walls and ceiling of the boiler room should be fireproofed. Adjacent to the boiler room must be the coal bin, and it should contain ample space for a fair supply of fuel. A coal bin under a driveway outside of the large school building is often possible, in which case the coal trucks can dump directly into the bin, thus saving expense and trouble in handling.

Stack.—A chimney for the boiler of ample capacity and height to insure proper draft is required, and it should have at the bottom a soot cleanout door. If a hot air furnace is used, the height of the heating apparatus room can be considerably less than 12 feet.

Heating and Ventilating.—In Chapter XII there is a short article on heating. Regarding ventilation, it is good counsel, whenever possible, to have a mechanical ventilating system installed in the school.

Height.—In general, it is advisable not to have the building more than two stories in height, but projects occur in which, for reasons of restricted site or economy or both, three or even four stories are placed above the basement.

Roofs.—It is well to avoid flat roofs, for they are chiefly responsible for that unsightly packing box appearance manifest in so many present-day schoolhouses. Besides, with a flat roof there is always the difficulty of taking proper care of the expansion and contraction in the necessarily great expanse of roof surface, all of which invites the development of cracks. A sloping roof with the gutters beyond the outside face of the wall avoids this difficulty.

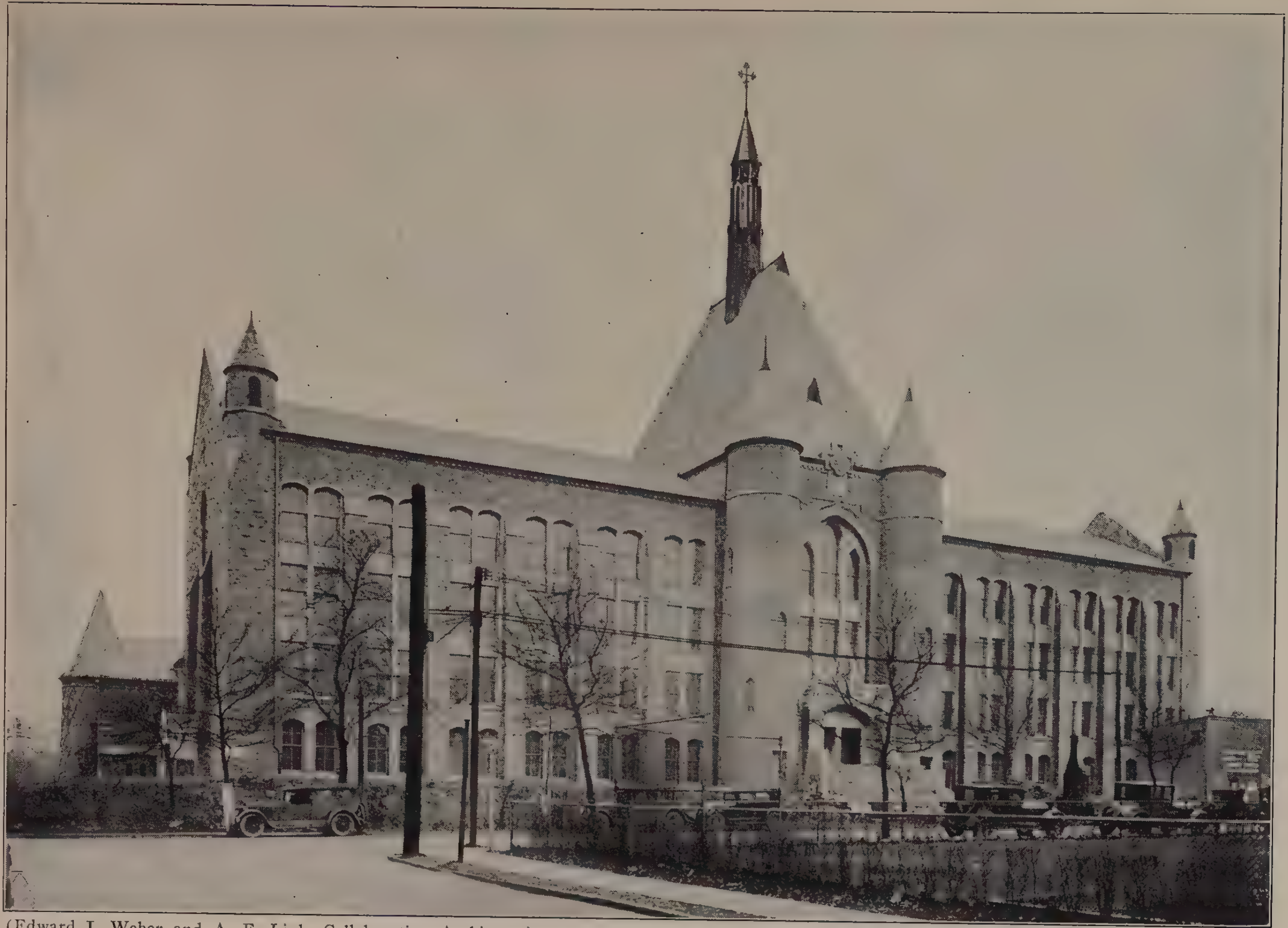
Plan.—The development of schoolhouse design in America is governed entirely by the classroom. The little red schoolhouse had one classroom only, and consequently no corridors or stairs. With plural classrooms, one or more corridors become necessary, and, when the school rises more than one story in height, stairways are unavoidable. Simplicity in the design of the plan makes for greater economy in building and for the minimum of danger in case of fire or panic.

Classrooms.—Classrooms are always designed oblong in shape, with the teacher seated against one of the short walls and facing the pupils. A good dimension for an elementary school classroom is 24 by 32 feet, and in high schools classrooms are generally built 22 x 30 feet. The former size will accommodate between 40 and 50 pupils, depending upon the grade.

Ceiling Heights.—It is customary in some sections of the country to provide in the classroom not less than 200 cubic feet of air space per pupil, and this determines the ceiling height. Ceilings will vary between 12 and 14 feet, depending on this and other conditions.

Windows.—The amount of glass area provided to light the classroom is, according to general custom, one-fifth of the floor area. The windows should all be located on one of the long sides of the room at the left side of the pupils. Only in case of dire necessity should some of this glass area be placed on an end wall of the room, and then only on the wall opposite the teacher. For the sake of the pupils' eyes, windows should never be placed on the wall in front of the pupils. The tops of the windows should not be more than about 6 inches from the ceiling, and the bottoms should not be less than about 3 feet above the floor.

Doors.—All doors in school buildings must open out, and they should swing away from the stairways. The exit door from the classroom should be 40 inches wide and near the teacher's end of the room. In a non-fireproof building there should be an additional exit at the opposite end of the classroom. The doors should be glazed in the upper half to allow light to enter the corridors. Glazed transoms over the



(Edward J. Weber and A. F. Link, Collaborating Architects.)

PLATE 250

BOYS' CATHOLIC HIGH SCHOOL, PITTSBURGH, PA.

doors can be used for the same purpose, but these should be stationary if there is a mechanical ventilation system in the building.

Equipment.—Platforms for the teachers' desks are no longer used. In each classroom there should be placed a small book case and a bulletin or tack board for posting notices. The latter can be at one end of the blackboard near the teacher's end of the room. It can be made of cork or of soft pine covered with burlap, and twenty inches wide by the height of the blackboard is sufficient in size.

Blackboards.—There is no satisfactory substitute for slate blackboards, and these should be placed all around the room except on the window side. It is best to stop the blackboards about a foot or eighteen inches away from the corners of the room. The boards should be not less than 42 inches in height. In the primer rooms they should measure 20 inches, in the intermediate rooms 22 inches, and in the upper grades 26 inches above the floor. Chalk troughs, three inches wide and open at the ends for facility in dusting out, should be supplied for all blackboards. A picture molding should be placed around the classrooms and in the principal corridors.

Wall Finish.—Sand float plaster walls are better for appearance' sake than smooth plaster. The ceiling should be tinted almost white to reflect plenty of light from the windows and the electric light fixtures. Walls tinted in greenish gray prove very satisfactory and pleasant for the eyes, although other colors can be used. It is well to avoid blues, reds and yellows. Dull coats or flat tints should be specified to the exclusion of glossy paints on the walls and ceilings. The best flooring for the classroom is maple, although magnesite composition floors have been to a great extent used with satisfaction.

Coat-Rooms.—The coat-room should adjoin the classroom; it should have direct outside light, whenever possible, and two doorways. If one of these doorways enters from the corridor, the coat-room may be made 4½ feet in width; but, if both doorways enter from the classroom, the width should be 5 feet. The latter doorway system is generally preferred as being more under the control of the teacher. There are examples where for economy's sake the swinging leaves of the doorways have been omitted between the coat-room and the classroom, but this permits the odor from the coats to enter the classroom. Long poles with coat hooks and also holders to carry umbrellas should be fastened on the walls. It is well to have a steam pipe running along the wall under the coat hangers to aid in drying out the clothing, umbrellas, etc. A zinc-lined drip pan is generally installed to receive overshoes and to catch umbrella drippings. Even when there is no ventilating system in the building, ventilators leading to the roof should be installed for each coat-room. In case the building is ventilated, the coat-rooms can be omitted and substitutes in the shape of wardrobes can be placed directly in the room itself. In this way the surveillance of the teacher over the contents of the wardrobes becomes even more easy, but in parochial schools this latter system is but rarely used. In high schools it is customary to do away with coat-rooms entirely; metal lockers placed along the walls of the corridors, or located in separate large locker rooms, take their places; an individual locker is assigned to each pupil, or otherwise two pupils share one locker between them.

Teachers' Rooms.—There should be on each floor a teachers' room of medium size. If the teachers' room on the ground floor can be without inconvenience placed near the principal entrance to the building, it is so much the better. In these rooms there should be a closet for garments, a book case, a table, and an easy chair.

Toilet Rooms.—These should be placed on each floor, excepting the basement, unless the latter contains classrooms. Separate toilet rooms for each sex should be built, preferably not adjoining one another. The number of fixtures required is governed by the size of the building, but for an eight-room school two stories high, 7 water closets and 2 wash bowls for the girls and 4 water closets, 3 urinals and 2 wash bowls for the boys are ample on each floor. The toilet rooms should be well lighted, and a ventilating system should be installed for them regardless of whether or not there is a ventilating system in the school. It should be made to lead the vents directly to the outdoors. The system must not be in any way connected with the classroom ventilating system. Private toilets for the teachers should be arranged at the entrance to one of the toilet rooms. A slop sink, contained in a janitor's closet, should be found on each floor. It is also often best arranged at the entrance to the toilet rooms.

Drinking Fountains.—On each floor of the building, there should be one or more sanitary drinking fountains centrally located; the number depends entirely upon the size of the building.

Entrances and Exits.—At least two entrances serving at the same time as exits are required for every school building containing more than two rooms, and when the building is more than one story high, the stairways are placed at these exits. Obviously, the larger the building, the greater the number of stairways and exits required. In non-fireproof buildings at least the stairways should be fireproof.

Vestibules.—The exits should be protected from the cold by vestibules provided with an inner and outer pair of doors. All outside doors should be supplied with panic bolts. No top or bottom bolts are allowed.

Stairways.—Stairways should have abundant direct outside light, and the vestibules should have glazed doors. In case a stairway is filled with smoke, egress is cut off for those in the upper stories; therefore, two stairways should be provided, one of which should be made a fire tower (*i.e.,* protected by fireproof doors and fireproof walls). If possible, these stairways ought to be at opposite ends of the building, or, if this is not feasible, they should be placed as far apart as possible; they should be carried the entire height of the building. Winding stairs, or what are known as "winders" in the stairs, should never be used.

Stairways should not measure between railings more than five feet in width. Treads for stairs should measure 11 inches in width, and for the risers a height of 6½ inches is good practice. At any rate, risers should never be less than 6 inches nor more than 7 inches. Slate treads on stairways are most commonly specified, but terrazzo, marble or metal safety treads are often substituted.

Floors.—Corridor floors can be of terrazzo, marble, magnesite-composition, slate, etc., or, when economy necessitates, even wood may be made to function. Floors of toilet rooms of terrazzo, and provided with a cove at the floor working into a six-inch terrazzo base, prove most satisfactory.

Woodwork.—The best wood finish procurable for the school is oak, but hard pine serves the purpose quite well when sufficient funds are not available for the more expensive wood.

GLOSSARY

Common Technical Terms Used in Ecclesiastical Architecture

Abacus.—A square or rectangular table forming the crowning member of a capital. In Gothic architecture, the circular or octagonal abacus was mostly favored in England, while the square or octagonal abacus is a French feature.

Abbey.—A term for the church and other buildings used by conventual bodies presided over by an abbot or abbess, in contradistinction to cathedral, which is presided over by a bishop, and priory, the head of which is a prior or prioress.

Abutment.—That part of a pier from which the arch springs.

Acanthus.—A plant found in the south of Europe, representations of whose leaves are employed for decorating the Corinthian and Composite capitals.

Ailes, Aisles.—The wings; interior side porticos of a church; the lateral corridors which enclose the choir and the body of the church along its sides. Any of the passages in a church or hall into which the pews or seats open.

Almonry.—The place or chamber where alms were distributed to the poor in churches or other ecclesiastical buildings.

Altar-piece.—The entire decorations of an altar; a painting placed behind an altar.

Altar-screen.—The back of the altar from which the canopy was suspended, separating the choir from the Lady-chapel and presbytery (see *Ante-chapel*). The altar-screen was generally of stone, and composed of the richest tabernacle work of niches, finials, and pedestals, supporting statues of the titulary saints.

Alto-rilievo.—High relief; a sculpture, the figures of which project more than one-half from the surface on which they are carved. See also *Basso-rilievo*.

Ambo.—A raised platform, a pulpit, a reading-desk, a marble pulpit—an oblong enclosure in ancient churches.

Ambry.—A cupboard or closet to hold sacred utensils, frequently found near the altar in ancient churches.

Ambulatory.—An alley; a gallery; a cloister.

Ancones.—The consoles or ornaments cut on the keystones of arches or on the sides of door-cases. They are sometimes made use of to support busts or other figures.

Annular Vault.—A vault rising from two parallel walls; the vault of a corridor.

Annulated Columns.—Columns clustered together by rings or bands; much used in English architecture.

Annulet.—A small square molding used to separate others, and generally encircling a column.

Anta, Antæ.—A name given to a pilaster when attached to a wall.

Antechamber.—An apartment preceded by a vestibule and leading to another room.

Antechapel.—A small chapel forming the entrance to another. The antechapel to the Lady-chapel in cathedrals is generally called the **presbytery.**

Antechoir.—The part under the rood loft, between the doors of the choir and the outer entrance of the screen, forming a sort of lobby. It is also called the **fore-choir.**

Antefixa.—In classical architecture (gargoyles in Gothic architecture), the ornaments of lions' and other heads below the eaves of a temple, through channels in which, usually by the mouth, the water is carried from the eaves.

Apophyge.—The cavetto or concave sweep at the top and bottom of the column proper, connecting it with the fillet.

Apse.—The semicircular or polygonal termination to the chancel of a church.

Arabesque.—A building after the manner of the Arabs. Ornaments in which no human or animal figures appear. Arabesque is sometimes improperly used to denote a species of ornaments composed of capricious fantastics and imaginary representations of animals and foliage, so much employed by the Romans in the decorations of walls and ceilings.

Arbores.—Large bronze candelabra, in the shape of a tree, placed on the floor of ancient churches, so as to appear growing out of it.

Arcade.—A range of arches, supported either on columns or on piers, and detached from or attached to the wall.

Arch.—In building, a mechanical arrangement of building materials arranged in the form of a curve, which preserves a given form when resisting pressure, and enables them, supported by piers or abutments, to carry weights and resist pressure.

Arch-buttress.—Sometimes called a flying buttress; an arch springing from a buttress or pier.

Architrave.—That part of an entablature which rests upon the capital of a column, and is beneath the frieze.

Architrave Cornice.—An entablature consisting of an architrave and cornice, without the intervention of the frieze, sometimes introduced when inconvenient to give the entablature the usual height.

Architrave of a Door.—The finished work surrounding the aperture; the upper part of the lintel is called the traverse; and the sides, the jambs.

Archives.—A repository or closet for the preservation of writings or records.

Archivolt.—A collection of members forming the inner contour of an arch, or a band or frame adorned with moldings running over the faces of the arch-stones, and bearing upon the imposts.

Arris.—The meeting of two surfaces producing an angle.

Ashlar, or Ashler.—A facing made of squared stones, or a facing made of thin slabs, used to cover walls of brick or rubble. **Coursed ashlar** is where the stones run in level courses all around the building; **random ashlar**, where the stones are of different heights, but level beds. Common freestones of small size, as they come from the quarry, are also called ashlar.

Astragel.—A small semicircular molding, sometimes plain and sometimes ornamented.

Atrium.—In Roman architecture the outer or entrance court surrounded by a roof, but open to the sky in the center. In large houses it had a colonnade. In early Christian and later architecture the open space before the entrance doors.

Attached Columns.—Those which project three-fourths of their diameter from the wall.

Attic.—A low story above an entablature, or above a cornice which limits the height of the main part of an elevation.

Attic Order.—A term used to denote the low pilasters employed in the decoration of an attic story.

Attributes.—In painting and sculpture, symbols given to figures and statues to indicate their office and character.

Auditory.—In ancient churches, that part of the church where the people usually stood to be instructed in the Gospel, now called the nave.

Back-choir.—A place behind the altar in the principal choir, in which there is, or was, a small altar standing back to back with the main altar.

Ball-flower.—The characteristic ornament of Decorated Gothic architecture.

Baluster.—A small pillar or column, supporting a rail of various forms, used in balustrades.

Baluster Shaft.—The shaft dividing a window in Saxon architecture.

Balustrade.—A series of balusters connected by a rail.

Band.—A sort of flat frieze or fascia running horizontally around a tower or other parts of a building, particularly the base tables in Perpendicular work, commonly used with the long shafts characteristic of the thirteenth century.

Band of a Column.—A series of annulets and hollows going around the middle of the shafts of columns, and sometimes of the entire pier.

Baptistery.—A separate building to contain the font for the rite of baptism. They are frequent on the continent; that at Rome near St. John Lateran, and those at Florence, Pisa, Pavia, etc., are all well-known examples. Today, the term is usually applied to that part of the sacred edifice set apart for the administration of baptism.

Barge Board.—See *Verge Board.*

Base Moldings.—The moldings immediately above the plinth of a wall, pillar, or pedestal.

Base of a Column.—That part which is between the shaft and the pedestal, or, if there be no pedestal, between the shaft and the plinth.

Basso-rilievo, or **Bas-relief.**—**Relief** is the representation of figures projected from a background without being detached from it. It is divided into three kinds: **Alto-rilievo,** when the figure projects more than one-half; **Mezzo-rilievo,** that in which the figure projects one-half; and **Basso-rilievo,** when the projection of the figure is less than one-half, as in coins.

Battlement.—A parapet with a series of notches in it, from which arrows were shot, or other instruments of defense hurled on besiegers. The raised portions are called **merlons**; and the notches, **embrasures** or **crenelles.** The former were intended to cover the soldier while discharging his weapon through the latter. In ecclesiastical architecture the early battlements have small shallow embrasures at some distance apart.

Bay.—Any division or compartment of an arcade, roof, etc. Thus each space, from pillar to pillar, in a cathedral, is called a **bay,** or **severy.**

Bay Window.—Any window projecting outward from the wall of a building, either square or polygonal on plan, and commencing from the ground. If they are carried on projecting corbels, they are called **Oriel windows.**

Bed Moldings.—Those moldings in all the orders between the corona and frieze.

Belfry.—Properly speaking, a detached tower or campanile containing bells, but more generally applied to the ringing-room or loft of the tower of a church.

Bell-cote, Bell-gable, or **Bell-turret.**—The place where one or more bells are hung in chapels or small churches which have no towers.

Bell of a Capital.—In Gothic work immediately above the necking is a deep hollow curve; this is called the bell of a capital. It is often enriched with foliages.

Bema.—The semicircular recess, or hexedra, in the basilica, where the judges sat, and where in after-times the altar was placed. It generally is roofed with a half-dome or concha. The seats of the priests were against the wall, looking into the body of the church, that of the bishop being in the center. The bema is generally ascended by steps, and railed off by cancelli.

Bench Table.—The stone seat which runs around the walls of large churches, and sometimes around the piers; it very generally is placed in the porches.

Bezantee.—A name given to an ornamental molding much used in the Norman period, resembling bezants, coins struck in Byzantium.

Billet.—A species of ornamented molding much used in Norman, and sometimes in Early English work, like short pieces of stick cut off and arranged alternately.

Boss.—An ornament, generally carved, forming the keystone at the intersection of the ribs of a groined vault.

Boutell.—The medieval term for a round molding, or torus. When it follows a curve, as around a bench end, it is called a **Roving Boutell.**

Broach-Spire.—An octagonal spire rising above a tower without a parapet, and having the angles of the tower covered with pyramidal forms.

Buttress.—Masonry projecting from a wall, and intended to strengthen the same against the thrust of a roof or vault.

Buttress, Flying.—(See *Flying Buttress.*)

Buttress Shafts.—Slender columns at the angle of buttresses.

Byzantine Architecture.—A style developed in the Byzantine Empire, comprised under the style Romanesque, which comprehends the round arch style. Byzantine architecture reached its height in the Church of St. Sophia at Constantinople.

Campanile.—A name given in Italy to the bell-tower of a town-hall or church. In that country this tower is almost always detached from the church.

Canopy.—The upper part or cover of a niche, or the projection or ornament over an altar, seat, or tomb.

Capital.—The upper part of a column, pilaster, pier, etc.

Cartouche.—An ornament which, like an escutcheon, a shield or an oval or oblong panel, has the central part plain, and usually slightly convex, to receive an inscription, armorial bearings or an ornamental or significant piece of painting or sculpture.

Catacombs.—Subterranean places for burying the dead.

Cauliculus.—The inner scroll of the Corinthian capital. It is not uncommon, however, to apply this term to the larger scrolls or volutes also.

Cavetto.—A concave ornamental molding, opposed in effect to the **ovolo**—the quadrant of a circle.

Ceiling.—That covering of a room which hides the joists of the floor above, or the rafters of the roof.

Cenotaph.—An honorary tomb or monument, the individual commemorated having interment elsewhere.

Chamfer.—When a small portion of the angle or arris formed by two sides of a piece of timber or stone is cut off at an angle of 45°, the surface thus exposed is called a chamfer. The chamfer is much used in medieval work.

Chancel.—The portion set apart for the clergy and choir and sometimes separated by a screen from the body of the church.

Chantry.—A small chapel, generally built out from a church. It usually contains a founder's tomb, and is often an endowed place where Masses may be said for his soul.

Chaptrel.—In Gothic architecture the capital of a pier or column which receives an arch.

Charnel House.—A place for depositing the bones which might be thrown up in digging graves. Sometimes it was a portion of the crypt; sometimes it was a separate building in the churchyard; chantry chapels were frequently attached to these buildings.

Cherub, Gothic.—A representation of an infant's head joined to two wings, used in the churches on keystones of arches and corbels.

Chevet.—A term applied to a circular or polygonal termination of a church, known as the apse, surrounded by an aisle off which are chapels. Such chapels sometimes open direct into the nave.

Chevron, Gothic.—An ornament turning this and that way, like a zigzag, or letter Z.

Choir.—That part of a church or monastery where the Office is chanted.

Cincture.—A ring, list, or fillet at the top and bottom of a column, serving to divide the shaft of the column from its capital and base.

Cinquefoil.—A sinking or perforation, like a flower, of five points or leaves, as a **quatrefoil** is of four. The points are sometimes in a circle, and sometimes form the cusping of a head.

Clerestory, Clearstory.—When the middle of the nave of a church rises above the aisles and is pierced with windows, the upper story is thus called. Sometimes these windows are very small, being mere quatrefoils or spherical triangles. In large buildings, however, they are important members, both for beauty and utility.

Cloisters.—Covered passages of communication, surrounding a square open space called the **garth,** and connecting the cathedral with the chapter house, refectory, and other parts of the monastery to which they were attached.

Close.—The precinct of a cathedral or abbey. Sometimes the walls are traceable, but now generally the boundary is only known by tradition.

Clustered.—In architecture, the coalition of several members which penetrate each other.

Clustered Column.—Several slender pillars attached to each other so as to form one. The term is used in Roman architecture to denote two or four columns which appear to intersect each other at the angle of a building to answer at each return.

Coffer.—A deep panel in a ceiling.

Colonnade.—A row of columns. The colonnade is termed, according to the number of columns which support the entablature: **tetrastyle**, when there are four; **hexastyle**, when six; **octostyle**, when eight, etc. When in front of a building they are termed **porticos**; when surrounding a building, **peristyle**; and when double or more, **polystyle.**

Column.—A round pillar. The parts are the **base,** on which it rests its body, called the **shaft**; and the head, called the **capital.** The capital finishes with a horizontal table, called the **abacus**, and the base commonly stands on another, called the **plinth.** Columns may be either **insulated** or **attached.** They are said to be **attached** or **engaged** when they form part of a wall, projecting one-half or more, but not the whole of their substance.

Composite Arch.—The pointed or lancet arch.

Composite Order.—The most elaborate of the orders of Classical architecture.

Compound Arch.—A usual form of medieval arch which may be resolved into a number of concentric archways, successively placed within and behind each other.

Conge.—Another name for the **echinus** or **quarter round.**

Coping.—The capping or covering of a wall. This is of stone, weathered to throw off the wet.

Corbel.—The name, in medieval architecture, for a piece of stone jutting out of a wall to carry any superincumbent weight. A piece of timber projecting in the same way was called a **tassel** or a **bragger.**

Corbel Table.—A projecting cornice or parapet, supported by a range of corbels a short distance apart that carry a molding, above which is a plain piece of projecting wall forming a parapet, and covered by a coping. Sometimes small arches are thrown across from corbel to corbel, to carry the projection.

Corinthian.—The third order of Grecian architecture.

Cornice.—The projection at the top of a wall finished by a blocking-course, common in Classic architecture.

Corona.—The brow of the cornice which projects over the bed moldings to throw off the water.

Cortile.—The Italian name adopted in English for the internal area or courtyard, surrounded by an arcade in a palace or other edifice.

Coupled Columns.—Columns arranged in pairs.

Cresting.—An ornamental finish in the wall or ridge of a building, which is common on the Continent of Europe.

Crocket.—An ornament running up the sides of gablets, hood-molds, pinnacles, spires; generally, a winding stem like a creeping plant, with flowers or leaves projecting at intervals, and terminating in a finial.

Cross-Aisle.—An old name for a transept.

Cross-Vaulting.—A common name given to groins and cylindrical vaults.

Crypt.—A vaulted apartment of greater or less size, usually under the choir.

Cupola.—A small room, either circular or polygonal, standing on the top of a dome. By some it is called a **Lantern.**

Cusp.—The point where the foliations of tracery intersect.

Cyma.—The name of a molding of very frequent use. It is a simple, waved line, concave at one end and convex at the other, like an italic *f*. When the concave part is uppermost it is called a **cyma recta**, but if the convexity appears above and the concavity below, it is then a **cyma reversa.**

Cymatium.—When the crowning molding of an entablature is of the cyma form, it is termed the cymatium.

Cyrtostyle.—A circular projecting portico.

Dado, or **Die.**—The vertical face of an insulated pedestal between the base and cornice, or surbase.

Dais.—A raised portion at the end of a medieval or other hall, where the superior dined apart from his subjects.

Decorated Style.—The second stage of the Pointed or Gothic style of architecture, considered the most complete and perfect development of Gothic architecture.

Dentil.—The cogged or toothed member, common in the bed-mold of a Corinthian entablature, is said to be dentiled, and each cog or tooth is called a dentil.

Diaper.—A method of decorating a wall, panel, stained glass, or any plain surface, by covering it with a continuous design of flowers, rosettes, etc., either in squares or lozenges, or some geometrical form resembling the pattern of a diapered table-cloth, from which, in fact, the name is supposed to have been derived.

Discharging Arch.—An arch over the opening of a door or window, to discharge or relieve the superincumbent weight from pressing on the lintel.

Distemper.—Term applied to painting with colors mixed with size or other glutinous substance.

Dog-Tooth.—A favorite enrichment in the form of a four-leaved flower, the center of which projects, and probably was named from its resemblance to the dog-toothed violet.

Dome.—A cupola or inverted cup on a building. The application of this term to its generally received purpose is from the Italian custom of calling an archiepiscopal church, by way of eminence, Il Duomo, the temple; for to one of that rank, the Cathedral of Florence, the cupola was first applied in modern practice.

Doric Order.—The oldest of the three orders of Grecian architecture.

Drip.—A name given to the member of a cornice which has a projection beyond the other parts for throwing off water by small portions, drop by drop. It is also called **Larmier.**

Dripstone.—**Label,** or **hood-mold,** the termination of a projecting molding in Gothic architecture placed over the heads of doorways, windows, and archways, generally for the purpose of throwing off the rain.

Drum.—The upright part of a cupola over a dome; also, the solid part or vase of the Corinthian and Composite capitals.

Early English.—The first of the three divisions of Gothic architecture in England, which was evolved during the thirteenth century.

Eaves.—The lower portion of a roof projecting beyond the face of the wall.

Echinus.—Properly, the egg-and-dart ornament originally used in the Ionic capital; often applied to the bold projecting ovolo of the Doric capital.

Element.—The outline of the design of a decorated window, on which the centers for the tracery are formed. These centers will all be found to fall on points which, in some way or other, will be equimultiple of parts of the openings.

Embattlement.—An indented parapet; battlement.

Embossing.—Sculpture in rilievo, the figures standing partly out from the plane.

Embrasure.—The opening in a battlement between the two raised solid portions or merlons, sometimes called a **crenelle.**

Engaged Columns.—Columns attached to, or built into walls or piers, a portion being concealed.

Entablature.—The portion of a structure supported by a colonnade, in Greek architecture comprising the architrave, frieze and cornice.

Entail.—In Gothic architecture, delicate carving.

Entasis.—A slight swelling on the shaft of a column which prevents a hollow appearance.

Escutcheon.—In architecture, the shields used on tombs, in the spandrels of doors, or in string-courses; also, the ornamented plates from the center of which door-rings, knockers, etc., are suspended, or which protect the wood of the key-hole from the wear of the key.

Extrados.—The exterior or convex curve forming the upper line of the arch stones; the term is opposed to the **intrados,** or concave side.

Façade, or **Face.**—The whole exterior side of a building that can be seen at one view; strictly speaking, the principal front.

Fan Tracery.—The very complicated mode of roofing used in the Perpendicular style, in which the vault is covered by ribs and veins of tracery.

Fan Vault.—A system of vaulting peculiar to English Perpendicular work, all the ribs having the same curve, resembling the frame-work of a fan.

Fascia.—A flat, broad member in the entablature of columns or other parts of buildings, but of small projection.

Fenestral.—A frame, or "chassis," on which oiled paper or thin cloth was stretched to keep out wind and rain when the windows were not glazed.

Festoon.—An ornament of carved work, representing a wreath or garland of flowers or leaves, or both, interwoven with each other. It is thickest in the middle, and small at each extremity, where it is tied, a part often hanging down below the knot.

Fillet.—A narrow vertical band or listel of frequent use in congeries of moldings, to separate and combine them, and also to give breadth and firmness to the upper edge of a crowning cyma or cavetto, as in an external cornice.

Finial.—The flower, or bunch of flowers, with which a spire, pinnacle, gablet, canopy, etc., generally terminates. Where there are crockets, the finial generally bears as close a resemblance as possible to them in point of design.

Flags.—Flat stones, from 1 to 3 inches thick, for floors.

Flamboyant.—A name applied to the Third Pointed style in France, which seems to have been developed from the Second, as the English Perpendicular was from the Decorated. The great characteristic is, that the element of the tracery flows upward in long wavy divisions like flames of fire.

Flèche.—A general term in French architecture for a spire, but more particularly used for the small, slender erection rising from the intersection of the nave and transepts in cathedrals and large churches, and carrying the sanctus bell.

Floriated.—Having florid ornaments, as in Gothic pillars.

Flute.—A concave channel. Columns whose shafts are channeled are said to be fluted, and the flutes are collectively called flutings.

Flying Buttress.—An arched buttress used when extra strength was required for the upper part of the wall of the nave, etc., to resist the outward thrust of a vaulted ceiling. The flying buttress generally rests on the wall and buttress of the aisle.

Foils.—The small arcs in the tracery of Gothic windows, panels, etc.

Foliation.—The use of small arcs or foils in forming tracery.

Font.—The vessel used in the rite of Baptism.

Fresco.—The method of painting on a wall while the plastering is wet. The color penetrates through the material, which, therefore, will bear rubbing or cleaning to almost any extent.

Fret.—An ornament consisting of small fillets, intersecting each other at right angles.

Frieze.—That portion of an entablature between the cornice above and the architrave below. It derives its name from being the recipient of the sculptured enrichments either of foliage or figures which may be relevant to the object of the sculpture. The frieze is alsocalled the **Zoöphorus.**

Gable.—When a roof is not hipped or returned on itself at the ends, its ends are stopped by carrying up the walls under them in the triangular form of the roof itself. This is called the gable, or, in the case of the ornamental and ornamented gable, the **pediment**. The gables in ecclesiastical buildings are mostly terminated with a cross.

Gabled Towers.—Those which are finished with gables instead of parapets.

Gablets.—Triangular terminations to buttresses. They are sometimes finished with small crosses, but oftener with finials.

Galilee.—A porch used as a chapel for penitents, built near the West end of abbey churches. The origin of the term is conjectural. Some derive it from the Latin galeria, a long portico or porch.

Gallery.—Any long passage looking down into another part of a building, or into the court outside. In like manner, any stage erected to carry a rood or an organ, or to receive spectators, was latterly called a gallery, though originally a loft.

Gambrel Roof.—A roof with two pitches, similar to a **mansard** or **curb roof.**

Gargoyle, or **Gurgoyle.**—The carved termination to a spout which conveyed away the water from the gutters, supposed to be called so from the gurgling noise made by the water passing through it. Gargoyles are mostly grotesque figures.

Glyph.—A vertical channel in a frieze.

Gothic Style.—The name of Gothic was given to the various medieval styles at a period in the sixteenth century when a great Classic revival was going on, and everything not Classic was considered barbarian, or Gothic. The term was thus originally intended as one of stigma, and, although it conveys a false idea of the character of the medieval styles, it has long been used to distinguish them from the Grecian and Roman. The true principle of Gothic architecture is the vertical division, relation and subordination of the different parts, distinct and yet at unity with each other, and while this principle was adhered to, Gothic architecture may be said to have retained its vitality.

Grange.—A word derived from the French, signifying a large barn or granary. In England the term was applied not only to the barns, but to the whole of the buildings which formed the detached farms belonging to the monasteries; in most cases there was a chapel either included among these or standing apart as a separate edifice.

Grille.—The iron-work forming the enclosure screen to a chapel, or the protecting railing to a tomb or shrine.

Groin.—By some described as the line of intersection of two vaults where they cross each other, which others call the groin point. By others the curved section or spandrel of such vaulting is called a groin, and by others the whole system of vaulting is so named.

Groin Arch.—The cross-rib in the later styles of groining, passing at right angles from wall to wall, and dividing the vault into bays or travees.

Groin Ceiling.—A ceiling to a building composed of oak ribs, the spandrels of which are filled in with narrow, thin slips of wood.

Groin Centring.—In groining without ribs, the whole surface is supported by centring during the erection of the vaulting. In ribbed work the stone ribs only are supported by timber ribs during the progress of the work, any light stuff being used while filling in the spandrels.

Groin Point.—The name given by workmen to the arris or line of intersection of one vault with another where there are no ribs.

Groined Vaulting.—The system of covering a building with stone vaults which cross and intersect each other, as opposed to the barrel vaulting, or series of arches placed side by side.

Groins, Welsh, or **Underpitch.**—When the main longitudinal vault of any groining is higher than the cross or transverse vaults which run from the windows, the system of vaulting is called underpitch groining, or, as termed by the workmen, Welsh groining.

Grotesque.—A singular and fantastic style of ornament found in ancient buildings.

Grotto.—An artificial cavern.

Grouped Columns.—Three, four, or more columns put together on the same pedestal. When two are placed together, they are said to be coupled.

Guilloche, or **Guillochos.**—An interlaced ornament like net-work, used most frequently to enrich the torus.

Guttæ.—The small cylindrical drops used to enrich the mutules and regulæ of the Doric entablature are so called.

Hagioscope or **Squint.**—A term used for oblique openings found in medieval church walls for the purpose of seeing the altar.

Half-timbered construction.—A structure formed of wooden posts, the interstices being filled with brick or plaster.

Hammer Beam.—A beam in a Gothic roof, not extending to the opposite side; a beam at the foot of a rafter.

Hammer-beam Roof.—A Late Gothic form of roof without a direct tie.

Hanging Buttress.—A buttress not rising from the ground, but supported on a corbel, applied chiefly as a decoration and used only in the Decorated and Perpendicular style.

Hangings.—Tapestry; originally invented to hide the coarseness of the walls of a chamber. Different materials were employed for this purpose, some of them exceedingly costly and beautifully worked in figures, gold and silk.

Haunches.—The sides of an arch, about half-way from the springing to the crown.

Helix.—A small volute or twist like a stalk, representing the twisted tops of the acanthus, placed under the abacus of the Corinthian capital.

Hood-Mold.—See *Dripstone*.

Ichnography.—A horizontal section of a building or other object, showing its true dimensions according to a geometric scale, a ground plan.

Impost.—A term in Classic architecture for the horizontal moldings of piers or pilasters, from the top of which spring the archivolts or moldings which go around the arch.

Incise.—To cut in; to carve; to engrave.

Indented.—Toothed together.

Inlaying.—Inserting pieces of ivory, metal, or choice woods, or the like, into a groundwork of some other material, for ornamentation.

Insulated.—Detached from another building. A church is insulated, when not contiguous to any other edifice. A column is said to be insulated, when standing free from the wall; thus, the columns of peripteral temples were insulated.

Intaglio.—A sculpture or carving in which the figures are sunk below the general surface, such as a seal, the impression of which in wax is in bas-relief; opposed to **Cameo.**

Intercolumniation.—The distance from column to column, the clear space between columns.

Interlaced Arches.—Arches where one passes over two openings, and which consequently cut or intersect each other.

Intrados.—Of an arch, the inner or concave curve of the arch-stones.

Inverted Arches.—Those whose keystone or brick is the lowest in the arch.

Ionic Order.—One of the orders of Grecian architecture.

Iron Work.—In medieval architecture, as an ornament, chiefly confined to the hinges, etc., of doors and of church chests, etc. In some instances not only do the hinges become a mass of scroll work, but the surface of the doors is covered by similar ornaments.

Jambs.—The sides of the openings of doors and windows. The portion outside the window frame is called the **reveal.**

Keel Molding.—A molding like the keel of a ship formed of a circle on which is a fillet; also applied to a similar form of arch.

Keystone.—The stone placed in the center of the top of an arch.

Label.—Gothic; the drip or hood-molding of an arch, when it is returned to the square.

Label Terminations.—Carvings on which the labels terminate near the springing of the windows.

Lacunar.—A paneled or coffered ceiling or soffit. The panels or cassoons of a ceiling are called **lacunaria** by Vitruvius.

Lady-chapel.—A small chapel dedicated to the Blessed Virgin Mary, generally found in cathedrals.

Lancet.—A high and narrow window pointed like a lancet, often called a lancet window.

Lantern.—A turret raised above a roof or tower and very much pierced, the better to transmit light. In modern practice this term is generally applied to any raised part in a roof or ceiling containing vertical windows, but covered in horizontally. The name was also often applied to the louver or femerell on a roof to carry off the smoke; sometimes, too, to the open constructions at the top of towers, probably because lights were placed in them at night to serve as beacons. (See also *Cupola.*)

Lanterns of the Dead.—Curious small slender towers, found chiefly in the center and the West of France, having apertures at the top, where a light was exhibited at night to mark the place of a cemetery. Some have supposed that the round towers in Ireland may have served for this purpose.

Lattice.—Any work of wood or metal made by crossing laths, rods, or bars, and forming a net-work. A reticulated window, made of laths or slips of iron separated by glass windows, and only used where air rather than light is to be admitted, as in cellars and dairies.

Lavabo.—The lavatory for washing hands, generally erected in cloisters of monasteries.

Lean-to.—A small building whose rafters pitch or lean against another building or against a wall.

Linen Scroll.—An ornament formerly used for filling panels, and so called from its resemblance to the convolutions of a folded napkin.

Lip Mold.—A molding of the Perpendicular period like a hanging lip.

List, or **Listel.**—A little square molding, to crown a larger; also termed a **fillet.**

Loft.—The highest room in a house, particularly if in the roof; also, a gallery raised up in a church to contain the rood, the organ, or the singers.

Loggia.—An outside gallery or portico above the ground, and contained within the building.

Lombard Architecture.—A name given to the round-arched architecture of Italy, introduced by the conquering Goths and Ostrogoths, which superseded the Romanesque.

Louver.—A kind of vertical window, frequently in the peaks of gables, and in the top of towers, and provided with horizontal slats which permit ventilation and exclude rain.

Lozenge Molding.—A kind of molding used in Norman architecture, of many different forms, all of which are characterized by lozenge-shaped ornaments.

Lunette.—The French term for the circular opening in the groining of the lower stories of towers, through which the bells are drawn up.

Medieval Architecture.—The architecture of England, Germany, France, etc., during the Middle Ages, including the Norman and Early Gothic Styles. It comprises also the Romanesque, Byzantine and Saracenic, Lombard, and other styles.

Merlon.—That part of a parapet which lies between two embrasures.

Metope.—The square recess between the triglyphs in a Doric frieze. It is sometimes occupied by sculptures.

Mezzo-rilievo.—Or mean relief, in comparison with **alto-rilievo,** or high relief.

Minster.—Probably a corruption of monasterium—the large church attached to any monastery of monks.

Miserere.—A seat in a stall of a large church, made to turn up and afford support to a person in a position between sitting and standing.

Modillion.—So called because of its arrangement in regulated distances;

the enriched block or horizontal bracket generally found under the cornice of the Corinthian entablature. Less ornamented, it is sometimes used in the Ionic.

Mosaic.—Pictorial representations, or ornaments, formed of small pieces of stone, marble, or enamel of various colors.

Molding.—When any work is wrought into long regular channels or projections, forming curves or rounds, hollows, etc., it is said to be molded, and each separate member is called a molding.

Multifoil.—A leaf ornament consisting of more than five divisions, applied to foils in windows.

Mutule.—The rectangular impending block under the corona of the Doric cornice, from which guttæ or drops depend. Mutule is equivalent to modillion, but the latter term is applied more particularly to enriched blocks or brackets, such as those of Ionic and Corinthian entablatures.

Narthex.—The long arcaded porch forming the entrance into the Christian basilica. Sometimes there was an inner narthex, or lobby, before entering the church. When this was the case, the former was called **exo-narthex**, and the latter **eso-narthex**. In the Byzantine churches this inner narthex forms part of the solid structure of the church, being marked off by a wall or row of columns, whereas in the Latin churches it was usually formed only by a wooden or other temporary screen.

Nave.—The central part between the arches of a church, which formerly was separated from the chancel or choir by a screen.

Necking.—The annulet or round, or series of horizontal moldings, which separate the capital of a column from the plain part or shaft.

Niche.—A recess sunk in a wall, generally for the reception of a statue. Niches sometimes terminate by a simple label, but more commonly by a canopy, and with a bracket or corbel for the figure, in which case they are often called tabernacles.

Norman Style.—That species of Romanesque which was practised by the Normans, and which was introduced and fully developed in England after they had established themselves there. The chief features of this style are plainness and massiveness. The arches, windows, and doorways were semicircular, the pillars were very massive, and often built up of small stones laid like brickwork.

Ogee.—The name applied to a molding, partly hollow and partly round, and derived no doubt from its resemblance to an O placed over a G.

Order.—A column with its entablature and stylobate.

Oriel Window.—Gothic: a projecting angular window, commonly of a trigonal or pentagonal form, and divided by mullions and transoms into different bays and compartments.

Ovolo.—Same as **Echinus.**

Parapet.—A dwarf wall along the edge of a roof, or around a terrace walk, etc., to prevent persons from falling over, and as a protection to the defenders in case of a siege.

Patera.—A circular ornament resembling a dish, often worked in relief on friezes, etc.

Pavement, Tessellated.—See *Tessellated Pavements.*

Pavimentum.—A pavement formed by means of pieces of tile, marble, stone, flint or other material set in cement and consolidated by beating down with a rammer (*pavicula*), whence its name.

Pedestal.—The square support of a column, statue, etc., and the base or lower part of an order of columns: it consists of a plinth for a base, the die, and a talon crowned for a cornice. When the height and width are equal, it is termed a **square pedestal**; one which supports two columns, a **double pedestal**; and if it supports a row of columns without any break, it is a **continued pedestal.**

Pediment.—A low triangular crowning, ornamented, in front of a building, and over doors and windows. Pediments are sometimes made in the form of a segment; the space enclosed within the triangle is called the **tympanum.** Also, the gable ends of classic buildings, where the horizontal cornice is carried across the front, forming a triangle with the end of the roof.

Pendent.—A name given to an elongated boss, either molded or foliated, such as hangs down from the intersection of groins, especially in fan tracery, or at the end of hammer beams. Sometimes long corbels, under the wall pieces, have been so called. The name has also been given to the large masses depending from enriched ceilings, in the later works of the Pointed style.

Pendent Posts.—A name given to those timbers which hang down the side of a wall from the plate in hammer beam trusses, and which receive the hammer braces.

Pendentive.—A name given to an arch which cuts off, as it were, the corners of a square building internally, so that the superstructure may become an octagon or a dome.

Pendentive Bracketing, or **Cove Bracketing.**—Springing from the rectangular walls of an apartment upward to the ceiling, and forming the horizontal part of the ceiling into a circle or ellipse.

Perpendicular Style.—The third and last of the Pointed or Gothic styles; also called the Florid style.

Pews.—A word of uncertain origin, signifying fixed seats in churches, composed of wood framing, mostly with ornamented ends.

Pier.—A supporting mass other than a column between windows, doors, and other openings; a support on which the arch of a bridge rests. The term is sometimes given to a pillar in Gothic architecture.

Pilasters.—Flat square columns, attached to a wall, behind a column, or along the side of a building, and projecting from the wall about a fourth or a sixth part of their breadth.

Pillar, or **Pyller.**—A word generally used to express the round or polygonal piers, or those surrounded with clustered columns, which carry the main arches of a building.

Pinnacle.—An ornament originally forming the cap or crown of a buttress or small turret, but afterwards used on parapets at the corners of towers and in many other situations. It was a weight to counteract the thrust of the groining of roofs, particularly where there were flying buttresses; it stopped the tendency to slip of the stone copings of the gables, and counterpoised the thrust of spires; it formed the piers to steady the elegant perforated parapets of later periods; and in France, especially, served to counterbalance the weight of overhanging corbel tables, huge gargoyles, etc.

Piscina.—A small niche near the altar, with a hole in the bottom to carry off the water in which the priest has washed his hands.

Plinth.—The square block at the base of a column or pedestal. In a wall, the term plinth is applied to the projecting base or water table, generally at the level of the first floor.

Podium.—A continued pedestal; a projection from a wall, forming a kind of gallery.

Poppy Heads.—Probably from the French poupée: the finials or other ornaments which terminate the tops of bench ends, either of pews or stalls. They are sometimes small human heads, sometimes richly carved images, knots of foliage, or finials, and sometimes fleurs-de-lis simply cut out of the thickness of the bench end and chamfered.

Porch.—A covered erection forming a shelter to the entrance door of a large building.

Portal.—A name given to the deeply recessed and richly decorated entrance doors to the cathedrals in Continental Europe.

Pulpit.—A raised platform with enclosed front, whence sermons, homilies, etc., are delivered. Pulpits were probably derived in their modern form from the ambones in the early Christian church. There are many old pulpits of stone, though the majority are of wood. Those in the churches are generally hexagonal or octagonal; some stand on stone bases, others on slender wooden stems, like columns.

Putlog.—Horizontal pieces for supporting the floor of a scaffold, one end being inserted into putlog holes, left for that purpose in the masonry.

Quadrangle.—A square or quadrangular court surrounded by buildings.

Quatrefoil.—In tracery, a circular panel divided into four leaves.

Quirk Moldings.—The convex part of Grecian moldings when they recede at the top, forming a re-entrant angle with the surface which covers the moldings.

Quoin.—A term generally applied to the cornerstones at the angles of buildings, and hence to the angle itself.

Raking.—Moldings whose arrises are inclined to the horizon.

Random Work.—A term used by stone-masons for stones fitted together at random without any attempt at laying them in courses. **Random Coursed Work** is a like term applied to work coursed in horizontal beds, but the stones are of any height, and fitted to one another.

Range Work.—Ashlar laid in horizontal courses; the same as coursed ashlar.

Refectory.—The hall of a monastery, convent, etc., where the religious took their chief meals together. There frequently was a sort of ambo approached by steps from which the *Legenda Sanctorum,* etc., was read during meals.

Renaissance.—As applied to architecture, this term refers to the revival of Classical architecture which sprang into existence in Italy as early as the beginning of the fifteenth century, and reached its zenith in that country at the close of the century. There are several divisions of this style as developed in different localities, viz.:

The **Florentine Renaissance**, of which the Pitti Palace is one of the best examples.

The **Venetian Renaissance**, characterized by its elegance and richness.

The **Roman Renaissance**, which originated in Rome. Of this style, the Farnese Palace, St. Peter's, and the modern Capitol at Rome are the best examples.

The **French Renaissance**, introduced into France in the latter part of the fifteenth century by Italian architects, flourished until the middle of the seventeenth century. The Renaissance style was introduced into Germany about the middle of the sixteenth century and into England about the same time. This style in England is generally known under the name of Elizabethan.

Reredos, Dorsal, or **Dossel.**—The screen or other ornamental work at the back of an altar. In some large English cathedrals, this is a mass of splendid tabernacle work, reaching nearly to the groining. In smaller churches there are sometimes ranges of arcades or panelings behind the altars; but, in general, the walls at the back and sides of them were of plain masonry and adorned with hangings or paraments. In the large churches of Continental Europe the high altar usually stands under a sort of canopy or ciborium, and the sanctuary is hung around at the back and sides with curtains on movable rods.

Reticulated Work.—Work in which the courses are arranged in a form like the meshes of a net. The stones or bricks are square and placed lozenge-wise.

Rib.—A molding or projecting piece upon the interior of a vault, or used to form tracery and the like. The earliest groining had no ribs.

Rilievo, or Relief.—The projection of an architectural ornament.

Rococo Style.—A name given to that variety of the Renaissance which was in vogue during the seventeenth and the latter part of the sixteenth century.

Roll Molding.—Also called scroll molding from its resemblance to a scroll of paper, one edge of which projects over the other part.

Romanesque Style.—The term Romanesque embraces all those styles of architecture which prevailed between the destruction of the Roman Empire and the beginning of Gothic architecture. In it are included the Early Roman Christian architecture, Byzantine, Mohammedan, and the later Romanesque architecture proper, which was developed in Italy, Germany, France, and England. This later Romanesque, which was quite different from the preceding, came into vogue during the tenth century, and reached its height during the twelfth century, and in the thirteenth century gave way to the Pointed or Gothic style. In England, Romanesque architecture is known under the name of the Saxon, Norman, and Lombard styles, according to the different political periods.

Rood.—A name applied to a crucifix, particularly to those which were placed in the rood-loft or chancel screens. These generally had not only the image of the crucified Saviour, but also those of St. John and the Blessed Virgin standing one on each side. Sometimes other saints and angels are with them, and the top of the screen is set with candlesticks or other decoration.

Rood-loft, Rood-screen, Rood-beam, Jubé Gallery, etc.—The arrangement to carry the crucifix or rood, and to screen off the chancel from the rest of the church during the Holy Office. Certain parts of the Office (*e.g.*, the Epistle and Gospel) were formerly read from this loft; hence the name *Jubé* (the first word of the phrase used by the minister in asking a blessing before ascending to the loft).

Rood-tower.—A name given by some writers to the central tower, or that over the intersection of the nave and chancel with the transepts.

Rose Window.—A name given to a circular window with radiating tracery; called also **wheel window.**

Rubble Work.—Masonry of rough, undressed stones. When only the roughest irregularities are knocked off, it is called **scabbled rubble**, and when the stones in each course are rudely dressed to nearly a uniform height, **ranged rubble.**

Rudenture.—The figure of a rope or staff, which is frequently used to fill up the flutings of columns, the convexity of which contrasts with the concavity of the flutings, and serves to strengthen the edges. Sometimes, instead of being convex, the flutings are filled with a flat surface; sometimes, they are ornamentally carved and sometimes on pilasters, etc. Rudentures are used in relief without flutings, as their use is to give greater solidity to the lower part of the shaft, and secure the edges. They are generally only used in columns which rise from the ground, and should not reach above one-third of the height of the shaft.

Rustication.—A method of forming stonework with recessed joints, principally employed in Renaissance buildings.

Sacristy.—A small chamber attached to churches, where the chalices, vestments, books, etc., are kept by the sacristan. In the early Christian basilicas there were two semicircular recesses or apsides, one on each side of the altar. One of these served as a sacristy, and the other as the bibliotheca or library. Some have supposed the sacristy to have been the place where the vestments were kept, and the vestry that where the priests put them on; but we find from Durandus that the *sacrarium* was used for both these purposes. Sometimes the place where the altar stands enclosed by the rails has been called *sacrarium*.

Salient.—A projection.

Sanctuary.—That part of a church where the altar is placed.

Sanctus Bell-cote, or **Turret.**—A turret or enclosure to hold the small bell sounded at various parts of the Mass.

Sarcophagus.—A tomb or coffin made of stone, and intended to contain the body.

Scagliola.—An imitation of colored marbles in plaster work, made by a combination of gypsum, glue, isinglass, and coloring matter, and finished with a high polish.

Sconce.—A fixed hanging or projecting candlestick.

Scotia.—A concave molding, most commonly used in bases, which projects a deep shadow on itself, and is thereby a most effective molding under the eye, as in a base. It is like a reversed ovolo, or, rather, what the mold of an ovolo would present.

Screen.—Any construction subdividing one part of a building from another, as a choir, chantry, chapel, etc. The earliest screens are the low marble podia shutting off the *chorus cantantium* in the Roman basilicas, and the perforated cancelli enclosing the bema, altar, and seats of the bishops and priests.

Sedilia.—Seats used by the celebrants during the pauses in the Mass. They are generally three in number—for the priest, deacon, and subdeacon—and are in England almost always a species of niches cut into the South walls of churches, separated by shafts or by a species of mullions and crowned with canopies, pinnacles, and other enrichments more or less elaborate. The piscina and ambry sometimes are attached to them.

Shaft.—In Classical architecture that part of a column between the necking and the apophyge at the top of the base. In later times the term is applied to slender columns either standing alone or in connection with pillars, buttresses, jambs, vaulting, etc.

Shrine.—A sort of ark or chest to hold relics. It is sometimes merely a small box, generally with a raised top like a roof; sometimes an actual model of a church.

Soffit.—The ceiling; the under-side of any architectural member.

Spandrel, or **Spandril.**—The space between any arch or curved brace and the level label, beams, etc., over the same. The spandrels over doorways in Perpendicular works are generally richly decorated.

Spire.—A sharply pointed pyramid or large pinnacle, generally octagonal in England, and forming a finish to the tops of towers. Timber spires are very common in England. Some are covered with lead in flat sheets, others with the same metal in narrow strips laid diagonally. Very many are covered with shingles.

Splay.—The jamb of a door, or anything else of which one side makes an oblique angle with the other.

Squinches.—Small arches or corbeled set-offs running diagonally and, as it were, cutting off the corners of the interior of towers, to bring them from the square to the octagon, etc., to carry the spire.

Squint.—An oblique opening in the wall of a church; especially, in medieval architecture, an opening so placed as to afford a view of the high altar from the transept or aisles.

Stall.—A fixed seat in the choir for the use of the clergy. In early Christian times the *thronus cathedra,* or seat of the bishop, was in the center of the apsis or bema behind the altar, and against the wall; those of the priests also were against the wall, branching off from side to side around the semicircle. In later times the stalls occupied both sides of the choir, seats being placed at the ends for the prior, dean, precentor, chancellor, or other dignitaries. In general, in cathedrals, each stall is surmounted by tabernacle work, and rich canopies, generally of oak.

Steeple.—The term applied to the tower of a church, including the spire.

Stilted Arch.—An arch having its springing line above the line of impost moldings, to which it is connected with vertical pieces of walling or stilts.

Straight Arch.—A form of arch in which the intrados is straight, but with its joints radiating as in a common arch.

String-Course.—A narrow, vertically faced and slightly projecting course in an elevation. If window-sills are made continuous, they form a **string-course**; but if this course is made thicker or deeper than ordinary window-sills, or covers a set-off in the wall, it becomes a **blocking-course**. Also, horizontal moldings running under windows, separating the walls from the plain part of the parapets, dividing towers into stories or stages, etc. Their section is much the same as the labels of the respective periods; in fact, these last, after passing around the windows, frequently run on horizontally and form strings. Like labels, they are often decorated with foliages, ball-flowers, etc.

Subsellium.—A name sometimes given to the seat in the stalls of churches; the same as **Miserere.**

Surbase.—A cornice or series of moldings on the top of the base of a pedestal, podium, etc., a molding above the base.

Tenia.—The band or fillet forming the upper member of the Doric architrave.

Terminal.—Figures of which the upper parts only, or perhaps the head and shoulders alone, are carved, the rest running into a parallelopiped, and sometimes into a diminishing pedestal, with feet indicated below, or even without them, are called terminal figures.

Tesselated Pavements.—Those formed of tesseræ, or, as some write it, tessellæ, or small cubes from half an inch to an inch square, like dice, of pottery, stone, marble, enamel, etc.

Tooth Ornament.—One of the peculiar marks of the Early English period of Gothic architecture, generally inserted in the hollow moldings of doorways, windows, etc.

Torus.—A protuberance or swelling, a molding whose form is convex, and generally nearly approaches a semicircle. It is most frequently used in bases, and is generally the lowest molding in a base.

Tower.—An elevated building originally designed for purposes of defence. Those buildings are of the remotest antiquity, and are indeed mentioned in Holy Scripture. In medieval times they were generally attached to churches, to cemeteries, to castles, or used as bell-towers in public places of large cities,

Trabeated.—A style of architecture such as the Greek, in which the beam forms the constructive type.

Tracery.—The ornamental filling in of the heads of windows, panels, circular windows, etc., which has given such characteristic beauty to the architecture of the fourteenth century.

Transept.—That portion of a church which passes transversely between the nave and choir at right angles, and so forms a cross on the plan.

Trefoil.—A cusping, the outline of which is derived from a three-leaved flower, or leaf, as the quatrefoil and cinquefoil are from those with four and five.

Triforium.—The arcaded story between the lower range of piers and arches and the clerestory. The name has been supposed to be derived from *tres* and *fores*—three doors, or openings—that commonly being the number of arches in each bay.

Triglyph.—The vertically channeled tablets of Doric frieze are called triglyphs, because of the three angular channels in them—two perfect and one divided—the two chamfered angles or hemiglyphs being reckoned as one. The square sunk spaces between the triglyphs on a frieze are called **metopes.**

Turrets.—Small towers, often containing staircases.

Tuscan Order.—The plainest of the five orders of Classic architecture.

Tympanum.—The triangular space within the raking and horizontal cornices of a pediment.

Under-croft.—A vaulted underground chamber.

Valley.—The internal angle formed by two inclined sides of a roof.

Vault.—An arched ceiling or roof. A vault is, indeed, a laterally conjoined series of arches. The arch of a bridge is, strictly speaking, a vault. Intersecting vaults are said to be groined. See *Groined Vaulting.*

Verge.—The edge of the tiling, slate or shingles, projecting over the gable of a roof, that on the horizontal portion being called **eaves.**

Verge Board.—Often corrupted into **Barge Board**; the board under the verge of gables, sometimes molded, and often very richly carved, perforated, and cusped, and frequently having pendants, and sometimes finials, at the apex.

Vermiculated.—Stones, etc., worked so as to have the appearance of having been worked by worms.

Vignette.—A running ornament, representing, as its name imports, a little vine, with branches, leaves and grapes. It was common in the Tudor period, and runs or roves in a large hollow or casement. It is also called **Trayle.**

Volute.—The convolved or spiral ornament which forms the characteristic of the Ionic capital. **Volute**, **scroll**, **helix**, and **cauliculus** are used indifferently for the angular horns of the Corinthian capital.

Voussoir.—One of the wedge-like stones which form an arch; the middle one is called the keystone.

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